

Internal control and auditing of accounting-information systems

Mr Srdjan Lalić *, Mr Ivan Mirović **, Nevena Perić ***, B. Sc. Econ.

* Senior Assistant, Faculty of Business Economics Bijeljina, Istocno Sarajevo University, Semberskih Ratara Street nn, Bijeljina, Bosnia and Herzegovina. Email: srdjanl@telrad.net

** Senior Assistant, Faculty of Business Economics Bijeljina, Istocno Sarajevo University, Semberskih Ratara Street nn, Bijeljina, Bosnia and Herzegovina. Email: mirovicivan@yahoo.com

*** Assistant Auditor, General Office of Republic Srpska Public Sector Auditing, Email: nevena.peric@gsr-rs.org

Abstract - Application of IT in business today is an undisputable fact, and means of controlling and auditing these technologies is a well known issue. Starting from the assumption that management of a business organization make their business decisions on the basis of information delivered by accounting sector, the subject of this paper is information accounting system, internal control and audit, aiming to achieve more dynamic and effective presentation of true and reliable financial statements, with adequate protection and control of the information in order to minimize the risk of financial problems, as well as manipulative and criminal actions. Accordingly, this paper gives an overview of information technology in modern business on the example of accounting information system with its subsystems, along with the role and significance of internal controls and auditing.

Keywords - Information, Information Technology, Information Systems, Business System, Accounting System, Internal Control, Auditing.

I. INTRODUCTION

Frequency and dynamics of changes that are manifested in today's modern business environment seem to be more numerous and faster than in any century of our civilization. They have spread to all spheres of human activities, including bookkeeping and accounting. In previous periods, all documentation was on paper, and now the job is done by accounting software. From the entries in bound books, with or without logs, with or without the documentation, we have witnessed the fact that significant segments of the accounting function have become virtual. More specifically, companies in today's dynamic and turbulent environment are likely to operate successfully in the gruelling race with competition only if they possess well developed information systems within which all business functions will operate. Information system is a subsystem of economic agents, thus its objective and functioning shall inductively be defined to support and improve the operation thereof. Accounting information system is a system of notes that the business system creates and preserves with the purpose of maintaining in-house accounting system. The purpose of accounting information system is to accumulate data, i.e. information that will help company management to identify significant opportunities (chances) and problems (threats).

II. APPLICATION OF INFORMATION TECHNOLOGIES IN MODERN BUSINESS

The most powerful technology in the world today is information technology. There is a proverb which has become more of a principle "Those who possess information are in possession of the world." And no matter how true this fact and confirmed throughout history, it can be described as such in modern business world.¹ Today's developed countries have passed from the stage of industrial and post-industrial society to the next phase of development, so called Information Society. Company managers use information technology to provide information on raw material orders, inventories, sales, payments, budget and other data necessary for decision making. Systems of support in supervision, control, decision making and planning, are also increasingly used. An important feature of electronic commerce is that it provides equal business opportunities for big and small countries, or companies.

The goal of an information system within business system is that all the employees have access to the information they need in business decision making, planning, execution and control. Today, there is an increasing need for efficient information system for managing all business system activities. The information system includes in its operations people (participants), data and information, software, hardware and procedures. These five basic components make up an information system. The first two components, hardware and software, are those directly related to computer technology, and they provide necessary equipment and tools for working with data and information. The third component of information systems, which is the subject of the information system operation, consists of data and information. The fourth component is the people who use information system, or those who are engaged around its development and administration. The fifth component is procedures, i.e. the established rules of conduct and work related to information system.

¹ Hoode C. Margetts H., Informatization and Public Administration Trends, Igniting, Fuelling or Dampening. National Institute of Social Work Paper, London, 1999.

III. ACCOUNTING INFORMATION SYSTEM

Quality of business policy management and business decision-making within an enterprise business system is conditioned by the existence and operation of an integrated business information system. Accounting information system, as a subsystem of integrated enterprise information system, is not only connected with, but also conditioned by other subsystems of information system, which together form an integrated system. Other subsystems of information system include: finance, market research, planning, structural and technological, operational - technical, checking, commercial, legal and analytical.

The information system is different from other types of systems, its purpose being to record and document the operation of another system. The second system is target system. An information system cannot exist without the target system.

The accounting information system is a permanent part of daily operations of a company. Each transaction must be marked to make the financial statements or any kind of unofficial reports that management can use for the purpose of business analysis.

All business transactions must be recorded in the accounting system. Management needs accounting information in order to make good business decisions. Given the fact that accounting is mandated to record all business changes within a single business entity, accounting information system must be connected to all other systems within the subject.

In conjunction with other sub-systems, accounting information system collects and processes data, then based on them performs analysis, control, automatically prepares financial reports, and performs financial planning. The introduction of information technology has improved analysis, monitoring and reporting to the largest extent.

Namely, they are parts of the accounting work that in addition to accuracy must be done timely, which means fast and automatic data processing, and this is what modern technologies provide for. A good accounting system allows the user to examine informal reports such as out-of-date accounts receivable or reports on inventory status. These systems can be created to provide information on a form and within the deadline which correspond to each individual user.

The purpose of implementing the accounting system is to improve efficiency. If the system does not save time or increase accuracy, it should be replaced.

Accounting affairs within an information system can be grouped into²:

1. chart of accounts;
2. processing of financial changes;
3. creating all the recapitulation;
4. recap posting;

5. control between general ledger and analytical records;
6. various reports.

All the above functions are maintained by accounting information system. System connections required to record these transactions can be very complex. There are main files from which information must be reviewed constantly and there are a lot of new data which are constantly being entered into the system and updated by the main files. At the end of the process, everything has to be sorted out accurately to provide precise and clear accounting reports.

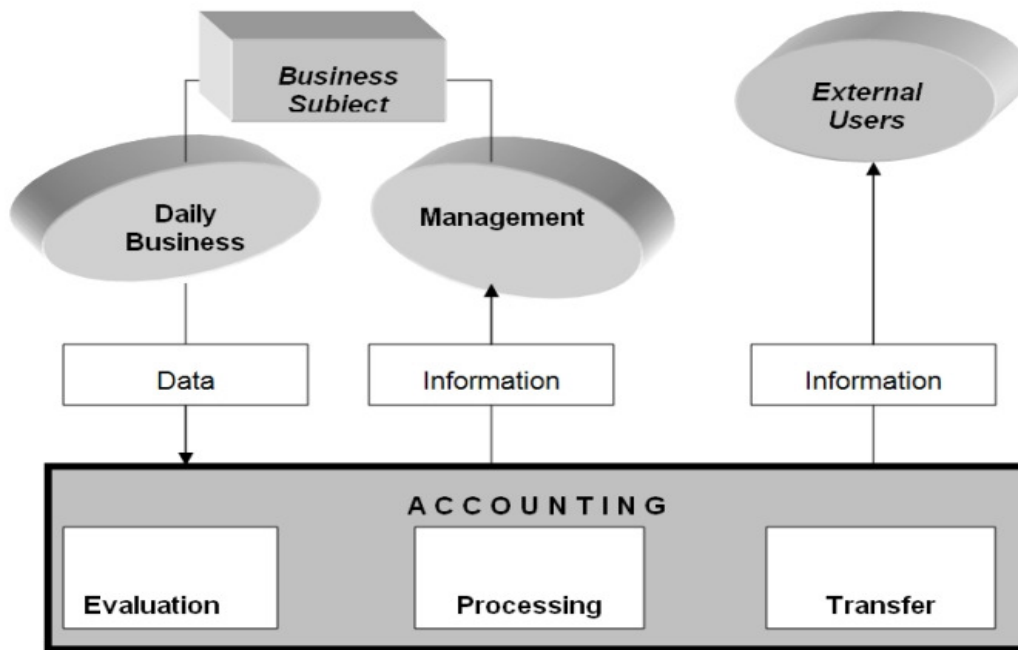
A. Accounting as a system

To understand accounting as an information system, it is necessary to define components of accounting in more details, as a general system:

1. Interconnectivity and Interdependence of the System Elements - indicates that there is an appropriate relationship between the elements. Sorting general ledger log, preparation of provisional and final balances, draft and operation of chart of accounts, etc.
2. Variety of Elements Contained within the System - means that each of the elements or sets thereof have their own performance. They can be divided or classified.
3. Holism of the System – means that the system consists of all its elements as a whole. It is not possible to see the system in a reliable way by reviewing its elements or one element. Lack of chart of accounts, general ledgers, documents, etc.
4. The Aim of the System - every system has a specific target or multiple targets. In accounting information system (RIS), primary goal is to produce quality information for business decisions.
5. Inputs and Outputs of the System - every system has input components based on which it produces output components. Incoming data on business events present inputs in RIS. Business information for business decision-making is the outputs.
6. Volatility of the System – the RIS is an emphatically changeable system. Regulations and internal regulations, as well as other segments are being constantly amended.
7. Feedback within the System – feedback is built into the RIS. There is a mechanism of permanent control of all activities undertaken. This way the system can be monitored and managed..

² Dr Rade Stankić, Dr Branko Krsmanović, Business IT with Practicum, Bijeljina Faculty of Foreign Trade, 2005, page. 123.

Figure 1 Accounting as an information system



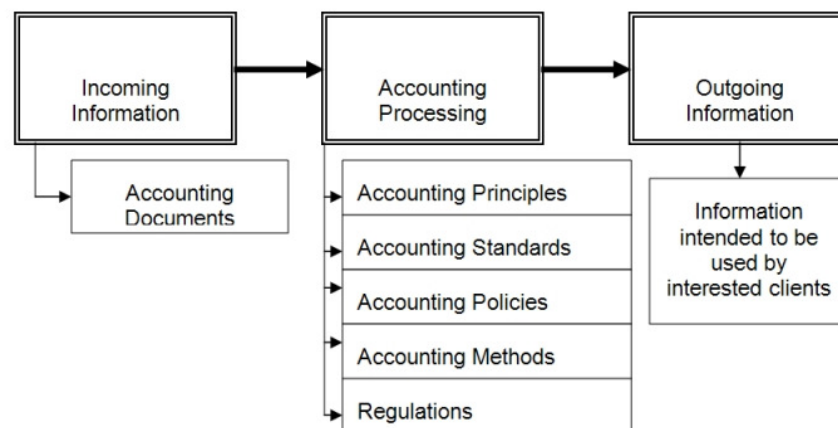
Source: Gray and Needles, 2001, Financial Accounting, Banja Luka, p. 4

B. Information subsystem as organizational structure of accounting

In the course of any organization of accounting functions and consideration of the role of information technology in it, it is necessary to point out that each of the accounting functions has the following main groups of accounting tasks and assignments, i.e. accounting activities:

1. bookkeeping;
2. accountancy planning;
3. accounting control;
4. accounting analysis;
5. accounting reporting.

Figure 2 Accounting Information System Functioning



1) Bookkeeping

Bookkeeping is an accounting activity whose function is to monitor all business events in the company at three levels. These three levels are:

1. analytical records;
2. synthetic records,
3. balance sheet and income statement.

The work technology is as follows: on the basis of basic analytical records, synthetic accountancy prepares the general ledger. Within the synthetic bookkeeping, business changes are recorded on those analytical accounts which are for practical reasons not kept in separate analytical records. Upon completion of synthetic bookkeeping, aggregate calculations such as balance sheet, income statement and additional accounting reports (annexes, report on capital change, etc.) are made.

2) *Accountancy Planning*

Main components of accounting plan are:

1. fund and fund sources plan;
2. gross and net revenue plan;
3. planned cost price calculation;
4. gross and net profit plan;
5. estimated amount of investment;
6. depreciation cost plan;
7. operation expenditure plan.

Each of these parts can be organized as separate sectors of planning. The entire planning process must be directly linked to other sectors within the accounting function, as well as to the sectors involved in planning being parts of other company functions such as manufacturing, procurement, sales, finance etc. When the accountancy planning has, in cooperation with all these functions, gathered the desired information, it starts processing the data in terms of making plans based on previous information and comparison of actual to planned values. The indicators obtained this way are used by company management in making their decisions. These decisions may be related to changes in product range, changes in product prices, changes in variable costs, changes in fixed costs and the like.

3) *Accounting Control*

Accounting control is a segment of overall control of a business entity. Four target groups of accounting control are:

1. incoming documents;
2. calculation control of performed posting and accounting;
3. outgoing accounting documents; and
4. planned accounting size and indicators, reports and information.

Accounting programs have a very important role in the process of controlling accounting functions. One of main accounting problems is finding errors in posting, simultaneous posting problem, the problem of accounting element integration, and update problem. These problems are solved through control functions in the books, but with the advent of information technology in accountancy, the amount of work in this capacity has been reduced significantly. This coverage is achieved with automated posting transfer, automated analytics and synthetics, automatic totals, automatic data comparison and the like. Now, the problem of error and control has been reduced to the original manual transaction entry into the computer.

4) *Accounting Analysis*

Analogous to the function of accounting control, the function of accounting analysis is a part of overall analysis carried out within a company. Accounting analysis deals with accounting data, with reproduction process as one of the main analysis subject. As shown in the scheme below,

accounting analysis can include the following transactions:

1. analysis of costs and workload;
2. analysis of gross and net profit;
3. analysis of the accounted amount of investment;
4. analysis of costs;
5. analysis of assets and liabilities;
6. analysis of gross and net revenue.

Accounting analysis is a process of obtaining constructive suggestions and guidelines for business result improvement, through the process of studying data from various accounting estimates and calculations. This is a series of activities of analytical and comparative nature done upon the data and values enshrined in various reports.

The objectives of the analysis, in addition to determining the deficiencies of reproduction process, may be determination of financial situation and efficiency of businesses, the discrepancies between planned and established values, calculation of indicators, and proposing measures for improvement of operations. To obtain these results, all the data available to accounting information system are used. This data is modified into desired indicators in a special part of software which contains formulae for calculation and analysis, and some even provide written proposals with solutions to existing problems.

5) *Accountancy Reporting (information)*

Final part of the accounting process is financial reporting. Accountancy department uses these accounting statements to present state of company business operations to different users (other business functions, management, business bodies, social bodies and other external users). Since future business operations and success of the company depend on business results, preparation and presentation of financial statements is a very sensitive area. Furthermore, taking into consideration the obligation of financial statement publication, the significance and timeliness of presenting this information is even greater.

Account informing and reporting may be done as a whole or divided into segments. Whichever of these forms observed, their development is easier with the use of accounting software. Namely, it is about automatic sorting and printing of almost all forms of accounting reports based on daily entered data into the system.

IV. ACCOUNTING - INFORMATION SYSTEM INTERNAL CONTROL

Internal controls are the IT policies, procedures, plans and organizational structures designed to provide realistic security for business objectives to be achieved, and adverse events prevented, allocated and fixed.

Furthermore, internal controls create an organizational plan for coordinating methods adopted within the company to protect its assets, check accuracy and

reliability of accounting data, promote operational efficiency and encourage adherence to prescribed managerial policies. Each system and process within the company exists to satisfy certain business purposes. An auditor must seek existence of risk to these purposes, and ensure that internal controls are in the right place to minimize these risks.

Therefore, internal controls are groups of interconnected components whose properly coordinated effects jointly support implementation of predetermined goals of the information system. To achieve this, specific organizational, basic and applicable controls are implemented in all areas and levels of information system functioning. There are three fundamental types of internal controls, regardless of what type of auditing is in question³:

- **Prevention / Protection Controls.** The main task of prevention / protection controls is to identify problems or adverse events before they occur, predict them and using preventative measures try to stop them, along with constant monitoring of information system operations. Typical examples of preventive controls are recruitment of educated and skilled workers, establishing the organization of bodies used for information system monitoring (IT of the Steering Committee), establishing information system internal audit department, raising awareness of constant needs of audits and controls, assigning duties and responsibilities, and creation of a handbook on information system security policy.

- **Detective Controls.** Detective controls are those which identify and detect errors or problems in any part of the information system. Typical examples include various basic controls of information systems, incoming data controls, authorisation controls, physical and logistics control of access to information system, checking licenses for the systems, precision control, process control, data control and the like.

- **Corrective / Reactive Controls.** The aim of these controls is to minimize the effect of errors and problems that can compromise the information system. As soon as a threat to this control is noticed, special instructions are implemented, thus the detected errors or threats can be corrected. The procedures of copying and archiving the data, data transfer controls, and controls of key equipment are just some of common reactive controls.

Internal control of accounting information system is implemented so the organization can:

1. protect assets from excessive wear and tear, fraud and inefficient use;
2. ensure reliability of accounting information;
3. ensure compliance with management policies;
4. evaluate the work of organisation section managers.

The main objectives of information system internal control processes are⁴:

- to save property of the information system (security objectives);
- to ensure integrity of the information system and its immediate environment to the highest possible extent, including the work of system software, network management and operation of the system itself;
- to authorise entry;
- accuracy and completeness of transaction part of the system;
- reliability of all activities related to information processing;
- accuracy, completeness and security of the outgoing values;
- the highest possible integrity of the database;
- compliance with customer requirements, organizational procedure and objectives, legal and other regulations (harmonization goals);
- development of procedures and rules to implement in case of an incident, whose main task is to enable continuity of operations with minimal losses and expenses (business continuity), as soon as possible. Successful companies often prescribe additional requirements regarding business continuity goals.

Primary role of auditors, in addition to management of advisory services, is ensuring that all operational controls function and work efficiently, as well.

V. AUDIT OF ACCOUNTING INFORMATION SYSTEM

Information technology audit is a process of collecting and evaluating the evidence and data based on which performance of information system can be estimated. An audit of information technology and systems determines whether IT resources in use support current business objectives and what degree of future goals of business development they support efficiently, as well as maturity of management, and control of information systems at different hierarchy levels. This type of audit can be considered quite young "science" that has been developed as an increase of or support to financial audit.

An inevitable point in information system audit is also assessment of effectiveness of information system internal controls. Internal controls, in terms of information system auditing, represent a system that prevents, detects and corrects adverse effects and processes in the IT environment. Management of the company, along with information system management, is directly responsible for implementing and evaluating the effectiveness of internal controls within the information system.

A common mistake is to have special information systems, with isolated control environment separate from the system internal control. The reason leading to this

³ www.itrevizija.ba

⁴ www.itrevizija.ba

opinion and interpretation is misinterpretation of business risk (false, unauthorized and unreliable use of information systems), which the company may face. It is therefore very important to audit information systems as they often represent the relationship between information systems and overall business objectives.

Main concern and obligation in the course of auditing information systems are to check data integrity, as well as integrity of any system that processes, reports or maintains the data. The role of information technology auditors is to assess and evaluate stability of data and information generated by the computer, analyzing specific programs and their output. An audit of information technology will also be used to support financial statements and reports. Auditors observe abilities of controls in information systems and any related operations, in order to guarantee system reliability.

Information technology auditing covers various types of audit needs and different areas of activity⁵:

- Technical IT audit - which covers infrastructure, data transmission and communications data, as well as compute centres.
- Application IT Audit - which covers business and financial areas.
- Organizational IT audit - which covers management of information technology controls.
- Development and Implementation IT audit - covering specifications, requirements, design and development, and implementation.
- Legal IT audit - covering national and international standards.
- Information technology auditing is an assessment of the IT, practices and operations which ensure integrity of the entity's information. Such assessment may include evaluation of effectiveness, efficiency and cost effectiveness of the practices that are computer based. The audit assessment of systems, practices, and operations may include one or both of:

1. assessment of internal controls within the information technology environment, to ensure validity, reliability and security of information;
2. assessing the efficiency and effectiveness of information technology environment in economic terms;

An IT auditor is the person who needs to know characteristics of user roles in the information system, further on to work out assessment of the environment within the organization, at the same time evaluating successful performance of any system. Audit of information technology is an essential part of the audit because it, as such, supports auditor's decision on the

quality of information processed by information technology and systems.

VI. CONCLUSION

Modern society is no longer called "industrial" or "consumer" but the "information society". Especially in the economic sphere, possession of information, possession and use of information technology, are becoming increasingly important.

Accounting process involves collection, processing and presentation of data. All these activities are now covered by relevant information and software packages that automatically perform recording, transmission, calculation, clustering, analysis, control plans, deviations from plans, and preparing financial statements. Introduction of this type of work in accountancy has led to multiple benefits that appear in the form of decreased workload, reduced percentage of problems, increased efficiency of data, better clarity and dynamics. This has raised the entire accounting sector to a lot higher level and made the job of mere recording the secondary one, whereas the creative and meaningful part of accountancy has become primary.

Internal controls are a set of procedures shaped by the administration, management and other employees with the purpose of obtaining a reasonable proof that organizational objectives will be achieved, risks foreseen, detected and minimized in time. Company management, in cooperation with information system management, is directly responsible for the design, implementation and evaluation of internal control system effectiveness within the information system.

Auditing and monitoring the systems that support business processes is imposed as an imperative of successful business and performance of business activities. The role of information technology audit and control has become a mechanism for ensuring the integrity of information systems and financial reporting in order to prevent financial problems promptly and minimize potential risks.

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⁵ www.itrevizija.ba