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**ANALYSIS OF PROCESSING ACCOUNTING
INFORMATION WITH A FOCUS
ON SATISFACTION WITH PRESENT
ACCOUNTING SOFTWARE PRODUCTS**

Abstract: Nowadays it is very important for a business entity to succeed in the competitive environment. Business enterprises look for ways to significantly and radically improve the efficiency of their corporate processes in order to facilitate the reduction of costs below the maximum level while at the same time maintaining the required quality of products and services. One of the ways to potentially reduce company costs is to implement the enterprise information system into the company environment. To become successful companies cannot simply rely upon their information system only, believing that the system implementation will improve their production efficiency. If core processes and their management are not working, no information system will lead a company to success.

Keywords: Enterprise Resource Planning, information systems, SAP, history of ERP systems.

1. Introduction

The process of information system integration is quite expensive and therefore it is necessary to thoroughly consider whether the system is really needed. If yes, attention should be given to the selection of such a system that may be used as an optimum and efficient tool in the competitive fight.

The aim of this contribution is firstly to characterize the term “information system” and then to focus a bit more on the definition of the term “ERP – Enterprise Resource Planning”. The basic area analyzed will, however, be the issues associated with the methods used for the recording of accounting transactions in the financial accounting by means of the selected enterprise information system used in the Czech Republic. The most widespread enterprise information systems used in the Czech Republic are SAP, Oracle, Microsoft Dynamics NAV and HELIOS. These systems are especially used in big companies and transnational (global) corporations that implement these systems mainly due to reasons of compatibility and mutual interconnection with their operating branches across the Europe or overseas. As for

the medium-sized companies there are some other systems used as well, especially Orsoft, ABRA and Money S5. Small companies besides the above mentioned systems tend to use some cheaper solutions such as Altus Vario systems.

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2. Definition of Enterprise Resource Planning (ERP)

“ERP (Enterprise Resource Planning) is a type of application, within the scope of the enterprise information system, allowing to manage and coordinate all available enterprise resources and activities. ERP applications cover all basic areas of enterprise management, i.e. sales, procurement (purchasing), warehousing, marketing, financial accounting, controlling, asset management, human resources, labor and salaries, engineering, production planning, operative management, workshop management etc.” [11].

Enterprise resource planning (ERP) systems are developed by commercial entities and offered as a product to individual business enterprises. These systems are based on the partial adaptability of standard software applications to the specific requirements of enterprises. In general we can say there are some general templates prepared for specific fields of business, which means the company that decides to implement the information system may simply get the relevant template to apply it [1]. It may either adapt its organizational structure and processes to comply with the template, or adapt the template (to a limited extent) on the basis of its current needs and requirements. These systems help to modify and improve the efficiency of individual company processes, however when the business entity faces some serious problems in the relevant area (e.g. in purchasing, production planning, production, logistics, marketing etc.) it may be of course impossible to radically improve the process efficiency and make the process functioning again [7].

Considering the above mentioned facts it is obvious that the main contribution of enterprise information systems do not lie in the general enhancement of company processes but rather in the improvement of their efficiency and automation.

Here are some of the key characteristics of these systems:

- Sharing of procedures and data including their standardization at enterprise level.
- Possibility to process historical data including their analyses by selected employees.
- Automation of individual enterprise processes and their incorporation into the system as well as the improvement of their efficiency.
- Complex approach to assurance/execution of company activities at the level of individual departments and operational units.

- Availability of information at enterprise level to individual users authorized to make use of such information [11].

ERP systems cover and automate key processes, such as planning and production control, recording and analyzing of accounting transactions, human resources management, logistics, asset management etc. ERP is an extremely efficient tool for the improvement of efficiency of corporate activities at all managerial levels, i.e. from operating up to the strategic level of management. The main goal is to incorporate the individual processes and functions into the entire enterprise level and to integrate individual applications used within the company, covering all the information needs of individual departments.

Having this goal in mind the enterprise may succeed in reducing the inefficiencies of processing and eliminate the potential errors associated with data entering into the system. Also the risk of inconsistency is reduced to minimum. The main principle of these systems is based on the presumption that data are entered into the relevant application only once and also that users may only access data they need for the execution of their job-related tasks and obligations. Data and information not necessarily needed for their jobs are unavailable to them. No data are therefore entered twice which reduces costs considerably and improves the efficiency of work associated with the processing of individual transactions.

It is important to use information systems for the implementation of the Balanced Score Card. Many enterprises use the enterprise resource planning system SAP, which gives aggregated information for strategic management [2].

As Jáčová interprets "... Implementation of the BSC method is not a one short action but rather an extensive and constantly developing process that is changing and improving over time. The implementation of the management system with BSC support does not only mean the application of the four basic BSC elements to the relevant production (business) unit, but also the total reorganization of the management system. BSC implementation may be divided into five steps a) establishment of organizational presumptions b) strategy clarification c) BSC creation d) deployment process management – BSC implementation in the whole company and assurance of quality documenting results e) provision for continuous use of BSC..." [3].

3. ERP Systems history

From a historical point of view we may say that the very first mentions of enterprise information systems date back to the 1960s. At that time the centralized computing systems were implemented in order to automate complex production and the organizational processes of relevant business enterprises. In particular computing systems were used for stock record keeping and later also for the registration of long-term tangible assets.

As times went on (approximately to the 1970s) the managements of business enterprises strived increasingly after making use of computer technologies and

software in order to minimize their stock and radically reduce wasting company resources. The necessary precondition however was not to jeopardize the distribution of produced or purchased assortment to customers and business partners. At that time so called MRP (Material Resource Planning) systems were used, aimed especially at the reduction of costs for stock. Another milestone in the history of information systems was the 1980s. MRP systems became advanced and were able to optimize batches of raw materials for production purposes including the planning of long-term tangible assets and labor capacities. Because of the extension of functions and the subsequent use of these systems, production as well as indirect costs, were reduced even further. These systems are referred to as MRP II. ERP systems were first mentioned at the beginning of the 1990s. At that time these systems were gradually being implemented and interconnected with the existing databases and especially with financial and managerial accounting systems. Because of the financial complexity of these systems they were mainly implemented and used by global corporations. At first these systems were developed as individual projects for specific business entities. These solutions were extremely expensive. Later the developers of ERP systems came with templates that enabled implementation in multiple entities engaged in similar business activities. This led to the reduction of costs on the development of these systems which then became accessible to more companies [8].

Nowadays ERP systems are not only used by global corporations and big companies. They have gradually become available to medium-sized and small companies too. In this regard it is necessary to mention that small and medium-sized companies are still treated by rather smaller providers of ERP systems, profiting from the recent demand for these products and services.

The gradual expansion of ERP systems has led to the following situation:

- Enterprise management gets real-time information relevant for managerial tasks, allowing them to make faster and more efficient decisions within the scope of enterprise management.
- Individual processes are integrated through corporate departments.
- All accounting documents and transactions are processed by means of computer technologies [8].

Because of the more frequent utilization of individual ERP systems, multiple developers of these systems strive after the implementation of additional more or less needed modules in order to improve their competitiveness and sale ability of their products in the market. On the one hand this is a clear benefit for enterprises that are considering the implementation of some suitable enterprise information system within their environment, however on the other hand the demands on users and administrators of these systems are increasing which may be in certain cases considered as disadvantage. The solution may be additional training of the staff in order to become able to work more efficiently with the particular software product.

4. Use of ERP Systems by business enterprises

As was already mentioned, nowadays we are witnessing the more frequent use of ERP systems by individual business entities. Multiple software producers do their best to aim these products at the widest group of users possible. In order to be able to generally characterize the selected systems, we must classify business enterprises into specific groups and determine the ERP systems that are most frequently used in the particular segments:

- Use of ERP systems in global corporations.
- Use of ERP systems in medium-sized business entities.
- Use of ERP systems in small companies.

4.1. Use of ERP systems in global corporations in the Czech Republic

The most widespread enterprise information systems used by big companies (global corporations) in the Czech Republic are especially HELIOS, MICROSOFT DYNAMICS and SAP (see Figure 1). This group of users covers big global corporations, especially engaged in the automotive industry, having their parent companies in foreign countries. This is clearly reflected by the structure of the systems used, as the main precondition is to establish and maintain the functioning interconnection between the parent company and its subsidiaries.

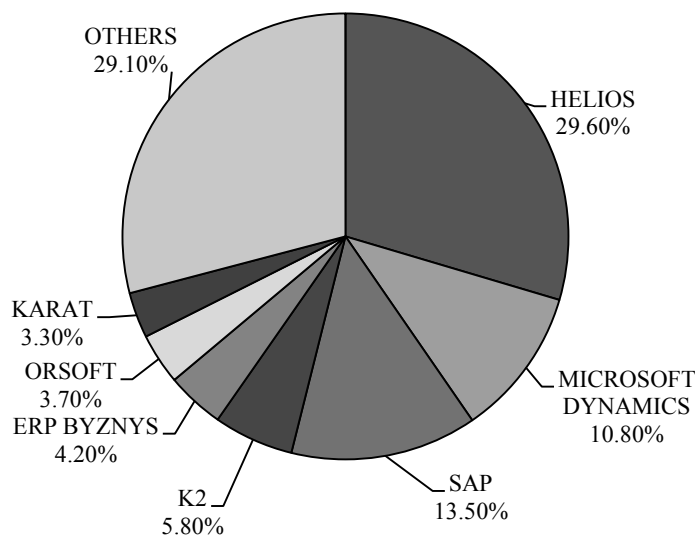


Figure 1. Use of ERP systems in global corporations in the Czech Republic

Source: CVIS. Český ERP trh roste i v období hospodářské krize, [online] <http://www.cvis.cz/hlavni.php?stranka=novinky/clanek.php&id=1043>.

4.2. Use of ERP systems in medium-sized business entities in the Czech Republic

As for medium-sized business entities the use of enterprise information systems in the Czech Republic differs compared to the percentage shares of individual products used by big companies. The reason is obvious the high costs for the acquisition of hardware and software equipment, including costs of maintenance of the enterprise information system operation. An important role is also played by costs for the training of employees users of the relevant information systems. This situation is clearly shown in Figure 2 where the most frequently used information systems are HELIOS, MICROSOFT DYNAMICS, ERP (BYZNYS class) and ABRA G2-G4.

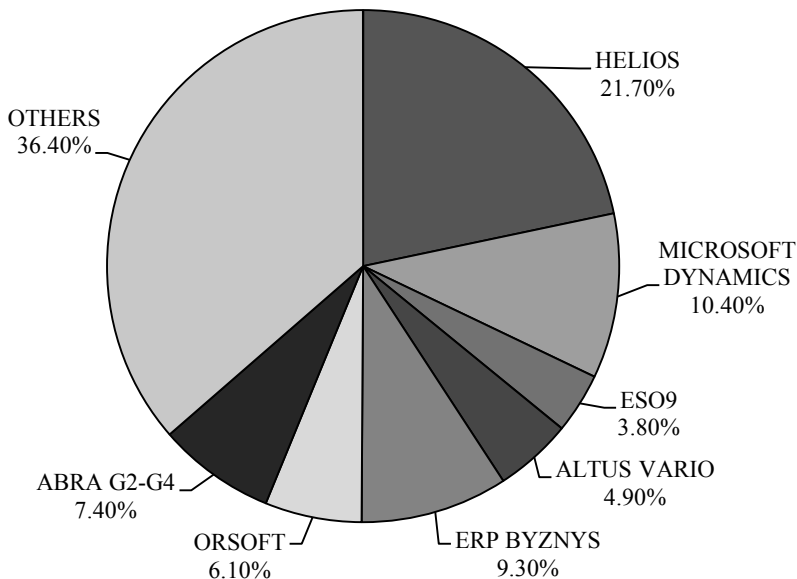


Figure 2. Use of ERP systems in medium-sized companies in the Czech Republic

Source: CVIS. Český ERP trh roste i v období hospodářské krize, [online] <http://www.cvis.cz/hlavni.php?stranka=novinky/clanek.php&id=1043>.

4.3. Use of ERP systems in small companies in the Czech Republic

As shown in Figure 3, the most frequently used enterprise information systems in the segment of small companies in the Czech Republic are HELIOS, ABRA G2-G4, ALTUS VARIO and ERP (BYZNYS class).

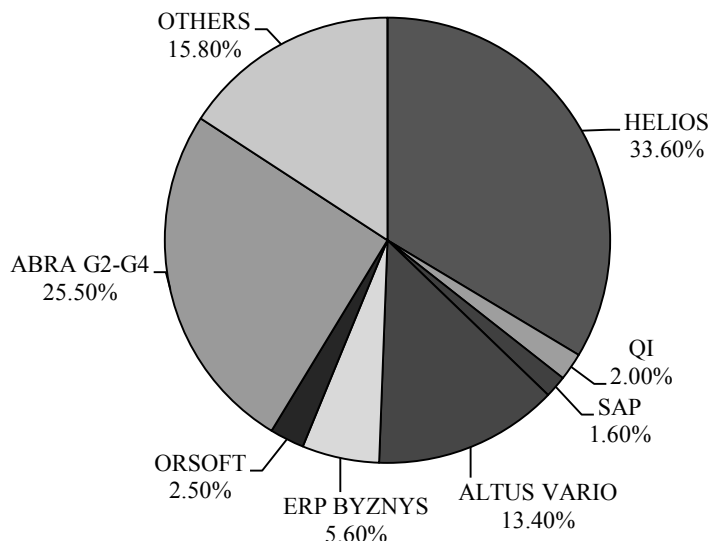


Figure 3. Use of ERP systems in small companies in the Czech Republic

Source: CVIS. Český ERP trh roste i v období hospodářské krize, [online] <http://www.cvis.cz/hlavni.php?stranka=novinky/clanek.php&id=1043>.

5. USE of SAP R/3 system for accounting transactions processing

One of the most widespread ERP systems used by global corporations in the Czech Republic is the SAP R/3 software product. Therefore this system was selected as the basis for the description of the methods of accounting transactions processing.

5.1. SAP system modules

As already mentioned in the general description of ERP systems, also SAP as one of the enterprise information systems has an integrated environment where information is stored (due to efficiency reasons) in a single database only. This database is shared by individual modules and the employees who make use of the modules may only access the information they necessarily need for their jobs. This is the way how to optimize the costs for the processing of individual transactions. Moreover data the users have at their disposal are always up-to-date and never duplicated.

Considering the fact that this system is the most widespread ERP system across the world, we must emphasize another quite important attribute that improves efficiency and reduces costs for individual company processes. We are referring to the fact that the system also offers the management of individual links between the company and its suppliers and also between the company and its customers. The

analyzed ERP system consists of the following mutually interconnected modules getting data from a single shared database:

- Human Resource (HR) – This module mainly used by HR staff in the company is especially dedicated to planning (personal development of employees, HR costs planning, training etc.) and management of human resources (labor costs, travelling expenses, recruitment and hiring etc.).
- Financial Accounting (FI) – This module is dedicated to financial accounting, especially covering general ledger, business partners (suppliers, customers), financial planning, consolidation, e-banking.
- Asset Management (AM) – This module is used for the purposes of financial accounting as well as for asset management. The module further covers investment controlling
- Quality Management (QM) – The model is especially used for logistics, particularly for monitoring, analysis, management and inspections of quality from the beginning to the end of the supply chain.
- Production Planning (PP) – The model covers complex planning and management of overall production (bills of material, production capacity optimization etc.).
- Sales and Distribution (SD) – This is a very important module for the purposes of financial and managerial accounting covering the invoicing to customers. It further comprises the pricing, sales, shipping and distribution of products offered.
- Materials Management (MM) – Another very important part of SAP R/3 system used for logistic purposes (purchasing of goods, warehousing, appreciation, consumption).
- Project System (PS) – This module is aimed at project management in a long-term perspective. Because of its contents this module will not be dealt with in this article.
- Workflow (WF) – This module deals with the flow of all documents in the company. It mainly serves for the organization of business processes.
- Industry Solutions (IS) – Again this module will not be described here in detail as it does not relate to the content and purpose of this article.
- Controlling (CO) – This module is dedicated to the needs of enterprise controlling. It draws data from financial and managerial accounting. It serves for the thorough analysis of business results, overall business performance and profitability. The module is further aimed at the optimization of costs, analysis and evaluation of deviations. Within the scope of this module important output data are prepared for company managers.
- Plant Maintenance (PM) – Considering the focus of the article, this module is quite unimportant, as it deals with the maintenance and repairs of technical systems and industrial solutions. On the other hand this module is quite important as a part of the complex enterprise information system SAP.

For the purpose of this article only a few selected modules will be described and analyzed in detail (only those related to financial accounting). In particular the following modules will be covered:

- Financial accounting (FI),
- Materials management (MM),
- Sales and distribution (SD),
- Controlling (CO),
- Asset management (AM),
- Human resources (HR).

5.2. Description of FI (Financial Accounting) module

From the financial accounting point of view this is one of the most important modules. It is characterized by the consolidation of all company data and monitoring of logistic processes related to financial accounting. This is the core module of the managerial level of SAP system architecture [11]. Its main task is to numerically quantify individual accounting transactions and to illustrate the current state and economy of the accounting unit. This information is then used by internal (company management) and external (shareholders, investors, state authorities) users of accounting data.

The FI module is broken down into a few sub-modules, altogether representing the area of financial accounting. These sub-modules cover:

- FI – GL – General ledger accounts.
- FI – AR – Accounts receivable.
- FI – AP – Accounts payable.
- FI – AM – Asset management (Accounting of long-term tangible and intangible assets).

All statements, analyses and quotations are based on data contained in this module. These data are used by many other mutually interconnected modules. In order to assure the required compatibility amongst individual modules, it is necessary to meet the following preconditions. The classification of accounts used by the relevant accounting unit shall be identical and the numbering of synthetic and analytic accounts shall also be identical for all SAP system modules used. The classification of accounts is a list of accounts used by the accounting unit for keeping the company books. It breaks down the guiding accounting system to specific conditions and requirements of the accounting unit. Another advantage of the SAP R/3 system is the fact that the classification of accounts may be adapted to the needs and requirements of local (country-specific) legislation and also that the relevant accounts may be specified for tax purposes. Therefore we may state that this system is suitable for global corporations having their subsidiaries in various parts of the world. An efficient system of accounting documents circulation must be assured on the basis of detailed concept in order to meet the requirements for the efficient processing of individual accounting transactions. All accounting operations may

only be recorded in accounting books if they are supported by relevant accounting documents.

The documents prepared for posting shall have the required content and must be complete. The task is to avoid posting inconsistent and incomplete accounting documents this is a kind of self-control aspect of this system, preventing the misrepresentation of accounting information [5]. As soon as the relevant document is posted, a posting number is assigned automatically for tracking purposes. The definition of individual types of accounting documents, including their attributes, is the sole responsibility of the accounting unit. The accounting unit must assure the additional assignment of accounts at the generation of accounting documents. All accounting transactions are registered in the general ledger, however the basis for individual data are subsidiary books, as mentioned by Vedralová:

- Accounts Payable FI-AP.
- Accounts Receivable FI-AR.
- Asset Management Accounting FI-AM.
- Materials Management MM.
 - Purchasing MM-PUR,
 - Inventory Management MM-IM,
 - Invoice Verification MM-IV.
- Human Resource HR [10].

The individual accounting operations are registered in the general ledger and then interconnected with relevant accounts in subsidiary books. This link is based on the precondition that all master data are interconnected with the relevant accounts receivable and payable. The advantage of the SAP R/3 system lies in the fact that if the required interconnection of accounting operations is assured, it is possible to reflect individual operations on control accounts which means that when accounting transactions are registered in any of the subsidiary books, the general ledger is updated accordingly.

5.3. Description of MM (Materials Management) module

Another important module used for the purposes of financial accounting is the Materials Management (MM) module engaged in the detailed registration of operations associated with stock used by the accounting unit within the scope of its production and administrative activities. All the items kept in this module must be appreciated based on the country-specific legislation. In accordance with Czech legislation purchased stocks are appreciated by acquisition price, manufactured stocks are appreciated by actual (factory) costs and stocks acquired free of charge are appreciated by reproduction cost of acquisition.

In order to post the acquisition of stocks, it is necessary to proceed as follows. First the accounting unit must carry out an analysis specifying the stocks that need to

be purchased, including the required quantities. These needs may be either determined by individual company departments or the SAP R/3 system that will subsequently compare the current state of stocks with the quantities required and analyze the need of acquisition of new stocks.

Another step is the selection of the supplier who is able to deliver the required stock at the necessary quantity, time and quality. If the database contains the necessary data, the system may automatically select the suitable supplier to realize the supply. As soon as the purchasing process is finished, the related accounting documents are generated (receipt slips, invoices etc.) in the system. In this respect it is necessary to claim that correct and complete data entered in the system may considerably improve the efficiency of the whole process of the registration and processing of accounting transactions. In case of any deviations (positive or negative) the system automatically alerts the relevant staff. If no deviation is discovered, the invoice may be released and the related payment processed (if due).

5.4. Description of SD (Sales and Distribution) module

The essence of this module is the processing of the commercial operation starting from the shipping of products from the warehouse of the relevant plant to delivery and the acceptance of the products by customer (including the generation of the invoice for the sale of products, goods and services). This module therefore processes and keeps records of the circulation of economic resources between financial accounting of the relevant accounting unit and its customers.

In order to be able to assure the required scope of activities, it is necessary to interconnect this module with other important modules, especially with MM (Materials Management), FI (Financial Accounting) and PP (Production Planning) modules. All accounting transactions are realized on the basis of the relevant accounting documents. Without these documents it would not be possible to record the accounting operations and execute the related business transactions. The SD (Sales and Distribution) module is also very important for the monitoring of accounts receivable and partially also for the registration of cash flows, as it analyzes and checks prior to the processing of the relevant transaction whether all past invoices were duly paid and if not to set the maximum credit limiting further deliveries to the same customer. If such a limit is exceeded, it is impossible to proceed with another business transaction without getting payment for the overdue liabilities from the customer.

5.5. Description of CO (Controlling) module

The Controlling module is another important module that is designed to meet the needs of the financial accounting. Considering the requirement for a single database, this module is based on the accounting transactions registered within the scope of the

financial accounting module and other modules as well. It especially covers incurred costs and generated revenues but also some other items usually registered in subsidiary books (as mentioned above). The module is especially aimed at the analysis of control processes. The information taken from this module is used for the identification and subsequent analysis of deviations. First the root causes are identified and analyzed, then suitable corrective action is implemented in order to eliminate the deviations.

Another important function is the measurement of performance of individual processes and activities and the analysis of the source and development of costs and revenues both internally and in relation to external entities. Based on these facts we may state that the SAP R/3 system is suitable for enterprise management purposes as the information it contains is relevant for business management. To meet these needs it is necessary to allow for analytical processing of the economic result at all levels of organization. The processed outputs serve as a basis for decision-making by the relevant accounting unit as well as its parent company which is in the case of companies doing business in the Czech Republic often situated abroad.

5.6. Description of HR (Human Resource) and AM (Asset Management) modules

Other modules associated with the needs of financial accounting are the HR (Human Resources) module dealing with the human resources issues and the AM (Asset Management) module keeping records of all tangible and intangible assets used by the accounting unit for business purposes. The scope of the human resource management module is quite extensive as it not only covers the labor costs and travelling expenses management, but also registers the execution of other activities closely associated with the recruitment and hiring of new staff, management of working hours etc.

For the purpose of transactions associated with human resources it is necessary to incorporate the regulations and requirements set by country-specific legislation into the system. Therefore it is obvious that individual payroll transactions will differ based on the country where they are executed. If the accounting unit is based in the Czech Republic, it is necessary to upgrade the system by the country-specific regulations and requirements in order to meet the obligations towards the relevant state bodies. The last module of the SAP R/3 system closely associated with financial accounting deals with investment assets management. This area is quite extensive and only a few operations are aimed at the registration of accounting transactions. These operations cover the acquisition of tangible or intangible assets, keeping records of its wear and tear (depreciation) and retirement/disposal. The module contains some other functions as well, such as purchasing planning, utilization planning etc. The aim of this module is to minimize the costs for the used long-term assets and thus contribute to the optimum return of rate.

6. Conclusion

The main goal of the article was based on the explanation of the methods that are used for recording accounting information by computer technology. ERP systems are very useful tools for it but on the other hand there are a lot of positives and negatives connected with processing accounting information by computers. Every business entity must decide which system is the right one due to the cost of implementation, ways of processing information, connections between the modules of information systems, training costs and outputs that are useful for middle and senior management.

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ANALIZA PROCESU PRZETWARZANIA INFORMACJI KSIĘGOWYCH PRZY UWZGLĘDNIENIU ZADOWOLENIA ZE WSPÓŁCZESNYCH PRODUKTÓW SOFTWAREWYCH STOSOWANYCH W RACHUNKOWOŚCI

Streszczenie: W obecnych czasach dla przedsiębiorstwa bardzo ważne jest jego pomyślne funkcjonowanie w środowisku konkurencyjnym. Poszczególne przedsiębiorstwa poszukują sposobów, aby znacznie i radykalnie poprawić efektywność procesów biznesowych i to do takiego stopnia, aby możliwe było maksymalne obniżenie kosztów przy zachowaniu wymaganej jakości wytwarzanych produktów lub usług. Jedną z możliwości potencjalnej redukcji kosztów jest także wdrożenie w firmie biznesowego systemu informatycznego. Aby podmiot mógł odnosić sukcesy, nie można polegać tylko na danym systemie informatycznym i wierzyć, że dzięki jego wdrożeniu poprawi się efektywność działalności wytwórczej przedsiębiorstwa. Jeżeli w danym podmiocie nie funkcjonują poszczególne kluczowe procesy lub zarządzanie, żaden system informatyczny nie zapewni mu sukcesu.