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E-mail: efp.redaktor@gmail.com

Сайт: www.efp.in.ua



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НОВАК

Валентина Олексіївна
novakv.nau@gmail.com

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КРИВОШЕЙ

Дар'я Сергіївна

IMPROVEMENT OF PROCUREMENT
PROCESS THROUGH INTRODUCTION OF
INFORMATION TECHNOLOGIES

ВДОСКОНАЛЕННЯ ПРОЦЕСУ
ЗАКУПІВЕЛЬ ЗА ДОПОМОГОЮ
ВПРОВАДЖЕННЯ ІНФОРМАЦІЙНИХ
ТЕХНОЛОГІЙ

к. е. н., професор кафедри,
Національний Авіаційний
Університет

студент, Національний
Авіаційний Університет

NOVAK Valentyna Oleksiivna – PhD in Economics, Professor of department, National Aviation University

KRYVOSHEI Daria Serhiivna – student, National Aviation University

This work defines the term procurement as the process of finding and agreeing to terms, and acquiring goods, services, or works from an external source, often via a tendering or competitive bidding process. It is used to ensure the buyer receives goods, services, or works at the best possible price when aspects such as quality, quantity, time, and location are compared. Consequently, improvement of procurement activity of a company will increase its efficiency and profitability.

The purpose of work is to define reasons for introduction of an information technology and requirements for it.

Through implementing modern solutions and information systems, increasing the interconnection of functions, increasing the control and competence of key employees, as well as minimizing the risks of fraudulent schemes, a company can achieve a significant increase in its efficiency. Automation of procurement process helps to significantly increase the speed of decision-making by the buyer, as well as to minimize the cost of procurement management. Automation also allows companies to collect all the necessary statistics on procurement, which is an important and necessary step towards creating a purchasing strategy for the company. The information system should solve the main problem, particularly, the creation and placement of proposals to make offers (tenders) with the possibility of access for suppliers via the Internet, taking into account the functional role model, which requires the functionality of registration of internal and external users and taking into account the time frame for conducting tender procedures. Moreover, the tasks should include the functionality of the supplier's response, i.e. creation of a proposal (offer). This system should allow a company to determine the best offer, as well as generate the whole range of necessary reports.

Consequently, the introduction of a procurement management information system and its integration with a single information storage will significantly increase efficiency, reduce risks, minimize costs and increase the company's profitability.

* * *

В роботі запропоновано визначення терміну закупівлі як процес пошуку та погодження умов та придбання товарів, послуг чи робіт із зовнішнього джерела, часто шляхом тендеру або конкурсних торгів. Він використовується для того, щоб покупець отримувати товари, послуги або працю за найкращою можливою ціною, коли порівнюються такі аспекти, як якість, кількість, час та місцезнаходження. Як наслідок, удосконалення закупівельної діяльності компанії підвищить її ефективність та прибутковність.

Мета роботи – обґрунтувати необхідність впровадження інформаційних технологій та вимоги до них.

Впроваджуючи сучасні рішення та інформаційні системи, посилюючи взаємозв'язок функцій, підвищуючи контроль та компетентність ключових працівників, а також мінімізуючи ризики шахрайських схем, компанія може досягти значного підвищення її ефективності. Автоматизація процесу закупівель допомагає значно підвищити швидкість прийняття рішень покупцем, а також мінімізувати витрати на управління закупівлями. Автоматизація також дозволяє компаніям збирати всю необхідну статистику щодо закупівель, що є важливим і необхідним кроком до створення стратегії закупівель для компанії. Інформаційна система повинна вирішити основну проблему, зокрема, створення та розміщення пропозицій щодо подання тендерів з можливістю доступу постачальників через Інтернет, з урахуванням функціональної ролі моделі, яка потребує функціональності реєстрації внутрішніх та зовнішніх користувачів та врахування термінів проведення тендерних процедур. Крім того, завдання повинні включати функціональність відповіді постачальника, тобто формування пропозиції. Ця система повинна дозволяти компанії визначити найкращу пропозицію, а також генерувати весь спектр необхідних звітів.

Зроблено висновки, що впровадження інформаційної системи управління закупівлями та її інтеграція до єдиного сховища інформації значно підвищить ефективність, знизить ризики, мінімізує витрати та підвищить прибутковність компанії.

Keywords: *procurement, supply, requirements, automation, Balanced Scorecard, information system, tender, electronic bidding, contract, ERP, logistics*

Ключові слова: *закупівля, постачання, вимоги, автоматизація, збалансована система показників, інформаційна система, тендер, електронні торги, контракт, планування ресурсів підприємства, логістика*

INTRODUCTION

Procurement is the process of finding and agreeing to terms, and acquiring goods, services, or works from an external source, often via a tendering or competitive bidding process. Procurement generally involves making

buying decisions under conditions of scarcity [5, P. 54]. It is used to ensure the buyer receives goods, services, or works at the best possible price when aspects such as quality, quantity, time, and location are compared. Corporations and public bodies often define processes

intended to promote fair and open competition for their business while minimizing risks such as exposure to fraud and collusion.

Supplier relationship management facilitates establishing ways of interaction with companies that provide material and technical supply of the company. Many organizations seek to increase cost savings through the efficient selection of suppliers and supply chains. By identifying supply processes as profit centers, forward-thinking and progressive companies are strengthening relationships with suppliers and contractors, which gives procurement a large role in the strategic development of the company.

PURPOSE OF WORK

The purpose of the work is to define the purpose and benefits of introduction of an information system and its influence on procurement activity, as well as development of requirements and ways of assessment the efficiency and sufficiency of the information system to choose the best alternative.

RESEARCH METHODS

Research methods, which have been used in this work, are observation, comparison, analysis, synthesis, generalization and modeling.

RESULTS

Automated information systems and solutions for managing relationships with suppliers have the strategic value, expressed in the form of significant cost savings, the correct execution of contracts and accelerated payback. The company receives tools to achieve high results through the implementation of integrated business processes [6, P. 103].

Through implementing modern solutions and information systems, increasing the interconnection of functions, increasing the control and competence of key employees, as well as minimizing the risks of fraudulent schemes, a company can achieve a significant increase in its efficiency.

Procurement issues are usually in the area of special attention of a company's management. In recent years, the impact of supply chain management on the issue of maintaining competitiveness has grown significantly.

In order to ensure profit on an ongoing basis, it is advisable and necessary for companies to have a balanced system for managing procurement costs. If the company is able to reduce the cost of purchasing goods and services, the result will be an increase in profitability - without compromising on quality and even without increasing sales. Automation of supplier relationship management processes allows companies to automate all processes that combine the choice of supply sources and the actual procurement activities. At the same time, it allows to increase the transparency of the supply chain logistics network and to provide management with an interactive and the most detailed overview of all costs associated with the procurement.

The technologies for organizing procurement in commercial organizations on a competitive basis are well developed today, and there has been a long discussion about their automation. Automated competitive procurements of companies have already acquired the term, such as "B2B systems" [1, P. 86].

The purpose of any procurement tender is to save money by creating competition between suppliers and increasing transparency of markets, which, of course, has a positive effect on minimizing costs. Automation of this process helps to significantly increase the speed of decision-making by the buyer and minimize the cost of procurement management. Automation also allows companies to collect all the necessary statistics on procurement, which is an important and necessary step towards creating a purchasing strategy for the company. As known, automation becomes profitable when the cost of development and implementation is lower than the achieved savings. The largest interest in procurement automation is shown by large companies with a large range of purchased goods and services. However, for medium-sized companies that purchase resources and goods in large volumes or purchase a certain list of high-value items, automation can save enough and pay itself back, and most importantly minimize the risks of employees' illegal activities, which is also very detrimental to the company. Procurement automation systems may seem extremely useful to shareholders, company owners, the management, which protects the interests of shareholders, and internal audit services of companies.

The solution should include the functionality for managing procurement applications, formed on the basis of a single database of regulatory and reference information, a mechanism for approving applications and their approval, as well as the necessary functionality for tendering and qualification selection. The tender should be conducted on the basis of the procurement request and have a direct connection with the company's ERP system. To minimize risks, it makes sense to conduct a qualification of suppliers [8, P. 43].

Tender is a competitive form for the selection of suppliers' proposals for the supply of goods, the provision of services and the performance of work according to the conditions announced in the documentation, on time and on the basis of adversarial principles. The contract is concluded with the winner of the tender, i.e. the participant who submitted the best offer [3, P. 327].

Qualification of suppliers allows companies to increase the efficiency of procurement in the company and limit the list of suppliers to participate in the tender. This favorably affects the results of procurements and positively - on the results of the company's activity as a whole through minimizing the risks of assigning an order to suppliers, which for one reason or another cannot be considered reliable. Due to the qualification selection, it is possible to reduce costs caused by substandard materials of suppliers and to receive additional savings from reducing the need for additional labor resources, because there appears an opportunity to clearly structure the market.

Effective procurement management and well-structured business processes make it possible to effectively plan and develop the core business of the company. Only clearly thought out and implemented business processes of all stages, from collecting and consolidating needs to concluding a contract, will achieve the most effective results. Consequently, the introduction of an automated solution that allows companies to integrate external interaction with the market into the overall business

supply process creates a closed transparent chain. Manufacturers, suppliers and contractors are able to receive timely information on ongoing procurement campaigns, which increases the number of participants in the competitive market and is beneficial for the purchasing company.

Currently, many organizations are moving from a decentralized model to a centralized one, which allows the procurement service to use more flexible management tools and standardized procedures, and also opens up new opportunities for negotiating with suppliers in order to increase procurement efficiency and save money.

Centralized conducting of tenders allows companies to purchase significantly larger quantities for each item, which directly affects the final costs in the direction of minimizing them.

Electronic bidding offers the opportunity to minimize problems associated with various frauds and illegal schemes in the procurement processes aimed at implementing fraudulent schemes that entail losses for the company [4, P. 55].

The success of material and industrial companies largely depends on the activities of suppliers and contractors. At the beginning of market development, the problem of finding suitable suppliers often becomes a factor restraining the growth of a company. The ones that have been able to effectively solve procurement issues at this stage or have regressed integration receive significant competitive advantages.

The effectiveness of the company's implementation of market opportunities and innovative potential is largely determined by the activities of suppliers. Moreover, the effective relationship with suppliers makes an important contribution to the key performance indicators of the company.

Electronic bidding is a system of public relations between participants in electronic interaction of a public information system posted on the Internet regulated by the rules of law, through using which, its participants make civil-law transactions between themselves to sell goods and services [2, P. 73].

The electronic bidding process is regulated and includes the functions of preparing, collecting, analyzing, processing and providing information regarding electronic interaction participants.

The information system should solve the main problem, particularly, the creation and placement of proposals to make offers (tenders) with the possibility of access for suppliers via the Internet, taking into account the functional role model, which requires the functionality of registration of internal and external users and taking into account the time frame for conducting tender procedures.

Also, the tasks should include the functionality of the supplier's response, i.e. creation of a proposal (offer). This system should allow a company to determine the best offer, as well as generate the whole range of necessary reports.

To create a full procurement cycle by means of an automated system, a tender completion mechanism is required, which can be represented by the creation of an electronic document contract with the ability to print in accordance with the accepted template of the established sample.

To solve these problems such properties are needed:

- a simple and intuitive interface for suppliers and buyers;
- minimum hardware requirements;
- maximum performance and reliability;
- the ability to easily and efficiently back up business data and protect it from unauthorized access stored on the server;

- an additional advantage can be the ease of implementation and the ability to use the solution for its intended purpose immediately, without the need for additional refinement.

The implementation of any project is accompanied by the identification of possible (from the point of view of automation) solutions to the problems identified at the enterprise (automation object):

- the acquisition of a ready-made design solution (a typical application package);

- adaptation (refinement) of the project solution available at the enterprise (a typical project of its personal design);

- development of a new project by an outside organization;

- development of a new project by the employees of the enterprise.

Possible solutions should be analyzed and compared according to such characteristics as the functional completeness of the solution of the selected problems, the absence of redundant (unused) functions in the acquired (developed) projects, the simplicity of mastering the corresponding design solutions by users, the reliability of work, productivity, and the reliability of the results obtained, security from unauthorized access, availability of support, compliance with existing solutions for other tasks, possible terms for the creation and implementation of projects, etc.

The implemented information system should consolidate all the necessary information about the procurement processes in a single database, which will allow to receive a wide range of various reports, information and analytical materials, as well as visualize the information in the most convenient way for perception, which favorably affects the adoption of effective management decisions.

Such approach is called the Balanced Scorecard. The main purpose of this concept is to translate the vision of the company's management into reality, as well as to connect the strategy with operational activities and cost factors [7, P. 96].

The selection of key indicators is a rather responsible and controversial process. At the development stage, it must be borne in mind that strategic goals form the core of a balanced scorecard. Better indicators are useless if their underlying goals do not adequately describe the strategy leading to a sustainable competitive advantage.

CONCLUSIONS

Consequently, it is worth considering all the factors that have arisen associated with the reengineering of business processes and the introduction of a new information system that significantly reduces a number of costs.

The introduction of such information systems can significantly reduce risks, as well as increase the efficiency of the company as a whole. Moreover, the conso-

validation of all information affecting all areas of the company in a single information repository is very important. This will allow to quickly generate the necessary reports, determine relationships and obtain data on performance based on key performance indicators of the company at any time. It is advisable to provide access to the information storage in a limited manner in accordance with the functionally role model.

Thus, the introduction of a procurement management information system and its integration with a single information storage will significantly increase efficiency, reduce risks, minimize costs and increase the company's profitability.

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