



IMPLEMENTATION OF THE NEW INFORMATION SYSTEM FOR FINANCIAL MANAGEMENT (ERP SYSTEM) AT ŽRS A.D. DOBOJ

Siniša URUMOVIĆ¹ [0009-0008-8134-1275]
Mladen KURAVICA² [0009-0008-5799-9026]
Mladen BOŽIĆ³ [0009-0004-3720-3095]
Biljana URUMOVIĆ⁴ [0009-0004-1770-4300]
Gordana ILINČIĆ⁵ [0009-0007-6380-4590]

Abstract – It has been observed that most business processes and activities at ŽRS are based on paper documentation or are only partially automated. With a view to eliminating the existing shortcomings, it has been proposed that the new information system should be one from a group of modern ERP systems (Enterprise Resource Planning System) which, with their functionalities, enable the connection of business processes and organizational units that execute those processes into a single system. The advanced capabilities of modern ERP systems enable support for the business processes of individual companies - members of the holding, but also of the holding as a whole. ERP systems are modularly designed, with each module supporting a group of related business functions. The implementation of the ERP system brings numerous benefits, the most significant of which are: integration, standardization, optimization and automation of business processes, increased efficiency, recording of changes in real time, single input and single database. The implementation of the ERP system brings major changes: existing software solutions are abandoned and new ones are introduced, there is a change/redesign of existing business processes and the methods the organization functions as a whole.

Keywords – information system, ERP system, implementation at ŽRS a.d. Doboj.

1. INTRODUCTION

Two approaches are possible when acquiring and developing an information system: the traditional approach ("on-premise"), which implies local implementation of software on equipment that is owned and located at the company's location, and the cloud computing approach ("cloud") in which the system is located at a remote location (very often outside the country's borders), on the supplier's equipment and is accessed via an Internet browser or specialized client software. Our analysis of the estimated implementation costs shows that the traditional approach has the advantage. Also, it is a fact that even after the reorganization from a single company to a holding structure, the majority owner of the capital of the RS Railways will be the Government of Republika Srpska, and the provisions of the Regulation on information security measures for state-owned companies prevent the complete implementation of an information system for financial

management using "cloud computing" technology.

Based on the analysis of business processes and the adopted future organizational structure of RS Railways, which will be implemented in the form of a holding within which four companies will exist, it was proposed to introduce an integrated information system that would consist of the following modules:

- General ledger.
- Accounts receivable accounting.
- Liability accounting.
- Fixed assets accounting.
- Capital investment management.
- Sales management.
- Procurement and inventory management.
- Cost and income management.
- Management of receivables and payables upon maturity.
- Management of personnel records.
- Salary calculation.

The implementation of a module that meets these

¹ Željeznice Republike Srpske a.d. Doboj, Doboj, Republika Srpska, e-mail: sinisa.urumovic@gmail.com

² Željeznice Republike Srpske a.d. Doboj, Doboj, Republika Srpska, e-mail: mladen.kuravica@zrs-rs.com

³ Željeznice Republike Srpske a.d. Doboj, Doboj, Republika Srpska, e-mail: mladen.bozic@zrs-rs.com

⁴ Željeznice Republike Srpske a.d. Doboj, Doboj, Republika Srpska, e-mail: biljana.urumovic@zrs-rs.com

⁵ Željeznice Republike Srpske a.d. Doboj, Doboj, Republika Srpska, e-mail: gordana.ilincic@zrs-rs.com

requirements would replace the majority of existing software solutions that are outdated and unintegrated, eliminate the need for multiple entries of the same data in different applications, reduce the number of records that are kept only in paper form, and improve business processes, automation of data processing, quality of planning, control and reporting.

2. TECHNICAL SPECIFICATION OF THE SOFTWARE SYSTEM ERP

The objective of introducing a new organizational structure is, in addition to compliance with the requirements of the European Union that regulate the field of rail transport, the establishment of RS Railways as an efficient and sustainable market-oriented business entity [1].

The new organizational structure is based on the following key principles that are valid for all legal entities within the future holding organization of the RS Railways:

- Market orientation.
- Customer orientation.
- Profit orientation.
- Executive responsibility and comprehensive responsibility.
- Horizontal hierarchies.
- Transparency in decision-making processes [2].

The implementation of the new information system for financial management should be implemented in the new organizational structure of RS Railways. However, its establishment is not a simple process, and for this reason, the transition to a new organizational structure - holding, through two phases, was proposed:

- Preparatory phase - which should last 12 months, i.e. it would ideally start 12 months before the establishment of the new organizational structure. The goal of the preparatory phase is to present the new structure to all employees and psychologically prepare them for the new structure so that their "transition" to the new holding organization will be successful.
- The transition phase - which begins with the official order of introduction of the new structure and will last an additional 12 months.

3. SOFTWARE LICENSES

In the process of acquiring a new information system for financial management, it is necessary to request:

- An application package of ERP solutions that supports business processes that take place in RS Railways and that fulfill all required functionalities for 140 users.

- The application package of ERP solutions should enable the calculation of wages for 2,100 employees (total for 4 companies).
- Licenses for system administration – for four users.
- Database software license.
- Integration Software License.

Regarding the right of use (license), the offered information system should enable the creation of users of different levels of access, namely:

- User with full access – has access to all system functionalities.
- A user with limited access – has the ability to view all data, but limited data input and modification capabilities.

Along with the offered software, it is necessary to submit the manufacturer's technical documentation. It should contain all the necessary data for access, management and maintenance of the system (technical description of the configuration, database, process, interface, maintenance instructions, etc.).

The bidder is obliged to submit the Form of technical characteristics for the hardware platform for all hardware and infrastructure that is necessary for the operation of the ERP solution according to the methodology of the software manufacturer. This includes defining the environment (development, test and production) according to the methodology, defining the specification and number of servers, client workstations and all necessary interconnections between servers, storage systems, backups and connections to the LAN network. This information is needed so that the RS Railways can decide whether the existing hardware resources are sufficient or need to be increased [3].

4. FUNCTIONAL REQUIREMENTS OF THE NEW INFORMATION SYSTEM FOR FINANCIAL MANAGEMENT IN RS RAILWAYS

The new financial management information system of RS Railways should be one of the modern ERP business systems (Enterprise Resource Planning System). Such business-information systems enable the connection of various business processes and organizational units that execute those processes into a single system. This leads to consistent operation of all sectors of the company - sales, procurement, storage, distribution, finance and accounting. Since in one business organization (especially a large one) there can be a very large number of business processes that intertwine with each other and often cross functional or organizational boundaries, the conclusion is that they are difficult to monitor and analyze [3].

In that case, the ERP system, as a unique information system, has a very important role because

with its integration and various functionalities, it can significantly facilitate the management of the organization. This feature of the ERP system is particularly important in the light of the future organizational structure of RS Railways holding. The implementation of the ERP system should enable process management and provide information for making business decisions both at the level of future companies that will be established and at the level of the holding as a whole.

One of the basic characteristics of modern ERP systems is that they are predefined software solutions to support business processes that are based on the best world experiences and practices. Also, ERP systems of the newer generation are significantly flexible and their functionalities can be adapted to the specific needs of each organization. In this way, the implementation of the ERP system leads to the improvement of the existing business processes in the organization, increases the efficiency of the organization and ensures the optimal use of resources.

Before the emergence of the ERP system in the nineties of the 20th century, individual business functions were supported by individual software applications that were more or less connected, while the ERP system implies the complete integration of those applications into a single information system for business support.

Today, ERP systems are implemented in a large number of companies, especially large ones, and the key advantages of using these systems are:

- Integration of business processes.
- Standardization and optimization of business processes.
- Increasing efficiency.
- Improvement of work performance and productivity level.
- Recording of business changes in real time.
- High level of automation in data processing and reduction of errors.
- Unique data entry.
- Unique database.
- The possibility of creating quality reports for the needs of the Administration.
- Improvement and facilitation of the planning and control process.
- Increased security.
- Improving service and ultimate customer/client satisfaction.

Modern ERP systems consist of several modules or subsystems, each of which is intended for one group of business functions. How many ERP system modules will be installed in a certain company depends on its size, the type of activity it performs, the number of employees and other factors, but the following modules and their functionalities are common for ERP systems since they reflect the basic

business functions common to most business entities: procurement and warehousing, sales management, finance and accounting, asset management, human resources.

Based on the analysis of the business processes taking place in RS Railways and the future organizational structure-holding, we conclude that RS Railways needs the introduction of an integrated information system that would consist of the following mutually integrated modules:

- General ledger.
- Accounts receivable accounting.
- Liability accounting.
- Fixed assets accounting.
- Capital investment management.
- Sales management.
- Procurement and inventory management.
- Cost and income management.
- Management of receivables and payables upon maturity.
- Management of personnel records.
- Salary calculation.

The successful implementation of the above-mentioned modules would significantly improve the existing IT environment in RS Railways and, as a result, eliminate the observed shortcomings:

- Use of outdated and non-integrated applications.
- Weak support of business processes by applications in use.
- Multiple entry of the same data in different applications.
- Lack of automatic data processing and control.
- Out-of-date reporting.
- A large number of records exclusively in paper form.

5. RISKS AND ASSUMPTIONS OF THE IMPLEMENTATION OF THE NEW INFORMATION SYSTEM IN RS RAILWAYS

The implementation of a new information system is, as a rule, a complex, long-term and extensive project, associated with many risks. Practice has shown that these are expensive projects that have a significant failure rate (consulting company Gartner made an assessment in 2017 that showed that even up to 75% of all ERP system implementations do not achieve all the set goals). The implementation of a new information system brings big changes - in addition to abandoning the existing software solution and introducing a new one, there is also a change/redesign of existing business processes and a change in the way the organization functions as a whole [3].

The process of implementing a new information system represents a project of strategic importance for

the company, during which its stakeholders face a large number of different problems, from the technical and organizational aspects. In order to avoid bad practices and common mistakes, it is very important to identify implementation risks and adequately address them.

The identification of implementation risks and measures to mitigate them becomes particularly important when it is taken into account that the implementation is being carried out in the conditions of the entire restructuring of RS Railways, which in itself represents a significant aggravating circumstance for successful implementation.

The main technical risks of implementation are:

- Adequacy of the selected information system.
- Complexity of information system implementation and maintenance.
- Inadequate data migration.
- Technological unpreparedness of the organization.
- Inadequate integration with other applications / subsystems in use.

The basic measure for mitigating the technical risks of implementation is clearly and precisely defined hardware and functional requirements that the information system must satisfy in order to fully support business processes, and based on such defined requirements, the selection of the optimal software solution.

6. CONCLUSION

The new financial management information system of RS Railways should be one of the modern ERP business systems (Enterprise Resource Planning System). Such business-information systems enable the connection of various business processes and organizational units that execute those processes into a single system. This leads to consistent operation of all sectors of the company - sales, procurement, storage, distribution, finance and accounting. Since in one business organization (especially a large one) there can be a very large number of business processes that intertwine with each other and often cross functional or organizational boundaries, the conclusion is that it is difficult to monitor and analyze them.

In that case, the ERP system, as a unique information system, has a very important role because with its integration and various functionalities, it can significantly facilitate the management of the organization. This feature of the ERP system is particularly important in the light of the future organizational structure of RS Railways - holding. The implementation of the ERP system should enable process management and provide information for making business decisions both at the level of future companies that will be established and at the level of the holding as a whole.

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