

DIGITALIZATION OF THE HUMAN RESOURCES MANAGEMENT ACTIVITY VIA SIVECO SOFTWARE

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Abstract

The new information systems within organizations are increasingly systematizing the information transmission, decision-making process, and interpersonal communications. Their dissociation consists of the indicators system and people along with the entire interrelations system, although they become different from the classical information systems, in which only the collection and processing were automated. The extraordinary progress achieved in the information and communications technology industry has led to the automation of many components of the information system. Therefore, the tendency is for them to progressively overlap. This article presents how human resources management activities are managed within a regional branch in the field of railway transport.

Key words: human resources, IT system, rail transport

JEL Classification: M15, M12

1. Introduction

Because of the instability of the current economic environment, railway companies are determined to organize in a new way, seeking management methods to control crisis situations, which turn the existing theories upside down. An important feature of all modern approaches is the idea that all human resources must be mobilized to achieve organizational goals. According to the data provided by UIC (The International Union of Railways), in 2018 the European railway network had 238,600 kilometers, and Romania, with a railway network length of 10,820 kilometers had a share of 4.53% and ranked eighth in Europe (*International Railway Statistics, 2019*). Each activity pertaining to human resources management requires special attention, especially that of the digitalized personnel management, under the conditions of current management actions, preparing changes modeling and adjustment of the railway transport system to the constantly changing environment.

Currently, the railway companies in our country, like most Romanian organizations, are facing a recession influenced by the global economic and financial crisis. In this context, taking into account only the aspects related to technology and the requisite of economic recovery, without taking into consideration the social consequences, employees' individual and collective motivations, fails to lead to a rapid solution to the economic and social issues at the present time when the effects of the economic-financial crisis overlap the requisite of aligning the Romanian railway system to the standards and requirements imposed by Romania's membership in the European Union.

The Romanian labor market has undergone significant transformations manifested by the decline of the active and employed population, a consequence of the demographic decrease generated by the negative natural increase corroborated with an unfavorable migratory balance, by fluctuations of the unemployment rate and the increase of long-term unemployment. Moreover, the limited capacity to create new jobs was especially affected. The changes in the professional status are a direct consequence of the change of the property nature, in what regards the extension of the private property to the detriment of the public one (Patache, 2010, p.147).

The effects of rail transport are important, this being a key component of the economic and social development process of any country, often absorbing an overwhelming proportion of national budgets. From this point of view, there is a strong correlation between kilometers

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traveled by rail and the gross domestic product of a country (Simut, V., 2010, p.65). This helps development by facilitating trade, both nationally and internationally, by improving people's access to jobs, education, health care and other services.

2. Presentation of the company subject of the case study

Given the artificial intelligence creation and development as well as the paradigm of modeling with the help of objects, expert systems and systems for executive management appeared. Unlike management systems, which analyze information, generate reports and solve structured problems, systems for executive management allow the assessment of the situation in a timely analysis and intelligent manner at the top management (Tudoroiu, N, 2009, p. 37). According to the definition given by a group of authors, expert systems are computer programs based on artificial intelligence techniques, which store the knowledge of human experts in a well-defined field and then use them to solve difficult problems in said field (Zaharie, D., Năstase, P., 1999, p.9).

The *information system* implies a set of elements and relationships for data collection, transmission, processing and archiving, along with flows, compartments, people and indicators subsystem that contribute to the organization managers' decision-making. The automated component of the information system forms the *computer system*. It can be defined as the totality of automated methods and means for data collection, transmission, processing and archiving.

The "CREIR CF (Rail Operation, Maintenance and Repair Regional Centre)" branch in Constanta, object of this research, is one of the eight regional subunits of the national company CFR SA and has as object of activity the railway infrastructure management and safe train traffic organization in the southeastern part of the country on the railway main eight - Bucharest - Constanta. The railway main no. eight together with the traffic sections, which represent the traffic distances between two important stations called terminals, are schematically represented in figure no.1.

The total number of employees of the CFR Constanta branch, at the end of 2019, was 1895 people, out of which 175 employees with management and execution positions in the central unit of the branch and 1720 employees in the subunits throughout the territory. The staff of the CFR Constanta branch amounts 7.4% of the total number of employees of the CFR national company.

For the proper unfolding of the railway infrastructure management and train traffic organization activities, in the conditions of applying the new restructuring and reorganization measures, the "CREIR CF" Constanta Branch management must ensure the required human resources, both from a quantitative and qualitative perspective.

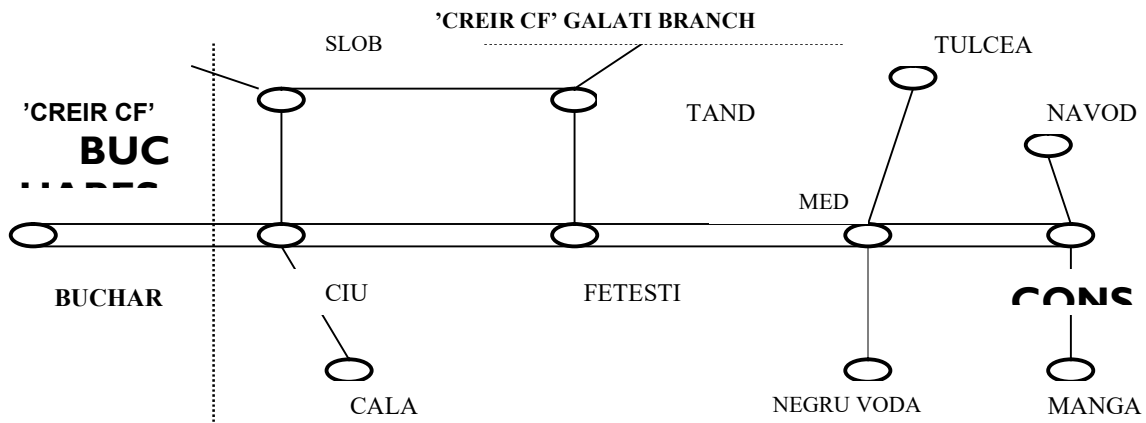


Figure no.1. Traffic sections of "CREIR CF" Constanta Branch

This implies, on the one hand, the ensuring of the necessary human resources overall demand and by categories of personnel with a level of training and professional specialization consistent with the specifics of the activity carried out, and on the other hand, a competent management of these resources (Daneci Patrau, 2013, p.76). Within the “CREIR CF” Constanta Branch, human resources information management is performed using the Siveco HR application, which is a software product entirely designed by the Siveco Romania SA specialists, under the Windows XP or W7 and NT 4.0 operating system, using the Oracle database.

3. Siveco_HR application for personnel activity management

SIVECO Romania is the leader of Romanian business software developers and one of the successful software integrators in Central and Eastern Europe. The company develops and exports IT solutions and high-value-added consulting projects to 19 countries in the European Community, the Middle East, North Africa and the Commonwealth of Independent States [6]. The company was established in 1992. The shareholders of SIVECO Romania are Intel Capital, Polish Enterprise Fund V (investment fund managed by Enterprise Investors), SIVECO Netherlands B.V and SIVECO Management Team [8]. Experienced and specialist IT providers manage to successfully oversee the complexity and difficulties of public automation projects, to contribute to the increase of interaction and economic productivity, to the activation of the overall access in a world where interconnection is of essence.

The application allows the computerization of human resources management activity by providing a common platform to connect people, processes and information. The system accelerates and increases the efficiency of organizational processes by intelligently managing workflows and all types of documents, regardless of how they enter the system or their nature.

The application has been designed such as to allow:

- record of employees with numerous professional and personal details;
- personnel selection and recruitment management;
- record and participation in professional training processes;
- evaluating the efficiency of employees with the help of quantitative and qualitative indicators;
- pursuing an individual career;
- statistical reporting of different managerial indicators;
- comparative and statistical analyses in graphic format, performed periodically, upon request.

A very large number of functions provide information on staff recruitment and management as shown in the diagram in Figure no 2:

- analysis and monitoring of employees' evolution
- training and career development
- management of salaries and timesheets, wage payment system.

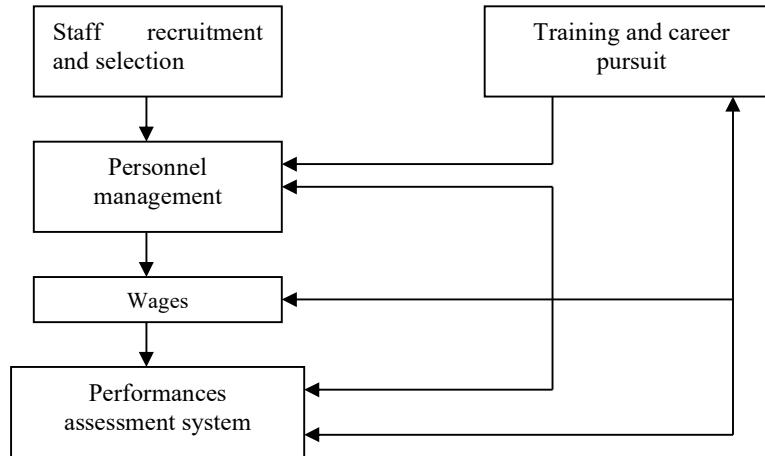


Figure no 2. Overall structure of Siveco application

The employees register keeps all the information regarding the staff necessary for the identification of all categories of employees. Simple and comparative analyses, examples and statistics displayed in a proper graphical way are an important means of supporting the decision, the system meeting the short, medium and long term needs of the company (figure no. 3).

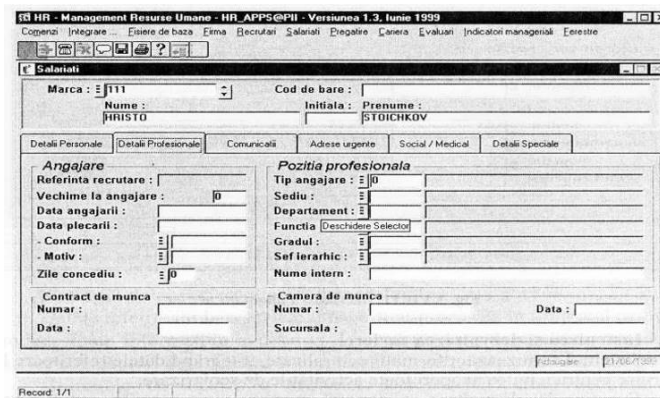


Figure no. 3. General characteristics of Siveco app

3.1. Staff recruitment and selection

Figure no.4 shows the data entry box for staff recruitment. The human resources system provides the necessary means to make the recruitment process the most important component of the human resources development strategy by:

- identifying the different phases of the activities to be performed - job fairs, agencies, recruitment campaigns;
- multiple possibilities to define the characteristics to be fulfilled for the respective position;
- efficient procedures for monitoring the different stages of the recruitment process - accepting or rejecting candidates, following tests, interviews.

Figure no. 4. Data entry box for staff recruitment

3.2. Training and career pursuit

The system provides centralized information, integrating the training data to be able to cover all training activities (Figure no. 5).

Figure no. 5. Training and career development

The staff career development function allows the optimization of human resources potential. The information considered is specific - career history, individual goals, individual and global skills assessing criteria. The training function essentially targets two main aspects, namely, the inventory of the previously carried out activity (graduations, titles, works), as well as the career evolution aspect based on tree diagrams for hierarchy and different professional specialties ascent.

3.3. Performances assessment system

Data regarding human resources is processed in real time to produce all the necessary information - a wide range of analyses, such as: employees' analysis, non-attendance, productive hours, staff costs. The personnel evolution analysis functions allow the determination of the percentage that will be transformed into real data for the wage payment system (figure no. 6). The *Evaluation* sub-module facilitates the attribution of some indicators and percentages of assessing the activity conducted and the efficiency in their solving. The

evaluations also refer to the current stage of the employee based on individual tests and evaluation references.

Figure no 6. Performances assessment system

3.4. Wage payment system

Payment procedures and cost management in relation with staff salaries, from beginning to end, perform a set of checks to ensure the promptness and accuracy of the remuneration process.

Having a high degree of delimitation and being easy to customize, the salary procedures are performed with great precision, according to the data presented in Figure no.7.

Figure no. 7. Wage payment system

4. Application description

The Siveco_HR application boasts the following features:

- the Human Resources component benefits from the implicit mechanisms: it allows access into the system using encrypted passwords, access levels for each type of user: “Personnel Manager”, “Payroll Manager”, “Payroll Operator”, “manager”, etc.;
- anyone can have controlled access to the application, the actions of the operator being monitored;
- skills can be accurately recorded or inferred from the responsibilities, positions and promotions log;
- the responsible user will have quick access to various information and actions such as: extra pays, bonuses, sanctions, downgrading;
- all calculations can be performed in accordance with the legislation and any amendments in the legislation can be recorded without affecting the previous methods.

Under these conditions the company database:

- allows the transparent integration of new systems along with the existing ones through a set of instructions for extracting data from several sources;
- it is a distributed database, which ensures the information safety, likewise offering the possibility to perform online backups, without having to prevent users beforehand not to access the database;
- ensures information security - the end user's access to the database will be made by password. Auditing is an advanced mechanism by which any operation is tracked by memorizing the end user's name, time, and type of operation.

The use of the Siveco_HR software system has the following advantages:

- the *Human Resources* component offers solutions to the current IT standards, with a low degree of risk, its modules being already verified through numerous implementations;
- the *Personnel Management* module automatically models the business process, both financially and operationally, and provides informational support for financial analysis, forecasts and decision-making in the field of human resources;
- program and database management is performed with powerful services that ensure data protection and reliability, using a system of profiles and access premises;
- the software package bears any modification of the hardware solution now or in the future, having a high level of portability.

The impact of new information and communication technologies on companies has a myriad of forms, ranging from relations with the economic and political environment, to the organizational, functional or personnel level. IT has a major influence on dissolving companies' typical borders, transforming, on the one hand, the nature of relations with other companies and institutions, and on the other hand, delivering a profound mutation of institutional forms, increasingly complex to match integration in the information society.

5. Conclusions

The integrated Siveco_HR IT system implemented at the “CFR” Branch in Constanta, adapted to the specific business requirements of the company, covers all areas of activity and ensures the modeling of processes to optimize the entire human resources management activity. The system can be replicated in companies with complex production activity, its implementation within a company like CFR SA being an important reference in this sector.

Following the evolution of the staff number and structure, the professional reconversion from some trades that become redundant to others where the training process takes longer, as well as the supervision of the retirement perspective are the main aspects that contribute to the development of a relevant, efficient personnel policy materialized in:

- elaboration of the forecasts regarding the necessary personnel (numerical, qualitative, by specializations, qualifications), which should also take into account the changes occurred according to the transport market, the competition, etc.;

- recruitment and staffing;

- selection of staff with promotion perspectives;

- procedures for assessing employees and establishing the need for professional training;

- elaboration of the training and professional improvement plan for the employees.

In order for the efforts made in terms of correlating the number of staff with the level of benefits to be followed by appropriate results, it is necessary that the employees within the company be wisely used. The professional training activity carried out so far by the Human Resources Department aimed ensuring the necessary qualified labor force, the professional reconversion of the surplus staff, the improvement of the professional training of a significant number of employees and the elaboration of specific regulations.

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