

Evaluating the Implementation of an Integrated IT Solution for HRM on the Organizational Efficiency and Effectiveness

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Abstract

Using an integrated human resources IT application as a document management service provider assumes that all relevant information can be found in a single integrated archive, ready to be constantly updated and intended to protect the organization in the event of a problem employee or control of the authorities. In the paper, the main objective is to evaluate the implementation of an integrated IT solution in human resource management on the efficiency and effectiveness of the organization. Furthermore, we also aim to identify the area in which the implementation of an IT solution will significantly contribute to the efficiency and effectiveness of an organization.

Key words: human resources, IT solution, efficiency, effectiveness

J.E.L. classification: O15

1. Introduction

Over the years, the role of the human resources department has evolved from an administrative to a strategic one, overcoming its classic duties of employment, professional development, and pay (Vărzaru and Vărzaru, 2013, 2015a; Bocean, 2015; Bocean and Sitnikov, 2015; Dessler, 2019; Wilkinson 2021). Some human resource managers believe that the responsibilities of a human resources department revolve around document management. The requirements of legal or internal regulations determine the managers of human resources departments to develop planning and harmonization activities with labor regulations.

The most important activity of the human resources department is the organization and management of information (Vărzaru and Vărzaru, 2015b). While some information should be made available to the general public, other documents should only be available to authorized personnel. Maintaining clear, complete, and accurate documentation is the only way to reduce and eliminate the risk of conflict (Valentine et al., 2019). This activity involves the assimilation of structured and unstructured documents that come from various sources in various formats (paper or electronic applications). The difficulty of the process increases as the volume of documents increases, especially when they require long-term archiving or periodic updating (Vărzaru et al., 2012). Therefore, it is necessary to implement an integrated IT solution to ensure efficient human resources management.

In the paper, the main objective is to evaluate the implementation of an integrated IT solution in human resources management on the efficiency and effectiveness of the organization. Therefore, the paper includes five sections in which the information on how the research is conducted and its results are presented: introduction, theoretical background, methodology, findings, and conclusions.

2. Theoretical background

While some information should be made available to the general public, other documents should only be available to authorized personnel. Maintaining clear, complete, and accurate documentation is the only way to reduce and eliminate the risk of conflict. This activity involves the assimilation of structured and unstructured documents that come from various sources in various formats (paper or electronic applications). The difficulty of the process increases as the volume of documents increases, especially when they require long-term archiving or periodic updating. To cope with these difficulties, any enterprise must build an information system of human resources (Vărzaru and Vărzaru, 2016).

The human resources information system is an integrated system designed to provide information used in human resources decision-making. A human resources information system serves two essential purposes within organizations. One refers to administrative and operational efficiency, and the other to organizational effectiveness (Wilkinson 2021).

The primary purpose of a human resources information system is to improve the efficiency with which employee data is collated based on human resources activities. Many human resources activities can be performed more efficiently and with less paper, if they are automated. Databases that can be accessed through the intranet allow storage of employee information in a minimal space and avoid unnecessary, time-consuming, and paper-intensive operations.

The second goal of a human resources information system is to target the organization's strategic level and allow for better human resource planning. The human resources information system makes the managerial decision-making process more information-based than the manager's perception and intuition.

Implementing a comprehensive document management program is the first step toward efficient human resource management. An effective human resource management program must ensure (Dessler, 2019):

- electronic capture and processing of documents on physical media,
- document management,
- secure delivery and archiving for each document used in human resources management regardless of its original form and format.

The use of an integrated human resources IT application as a document management service provider assumes that all relevant information can be found in a single integrated archive, ready to be constantly updated and intended to protect the organization in the event of a problem employee or control of the authorities, but also for finding the "unpolished diamond" in the great mass of CVs (Bocean, 2015).

In order to be efficient, an integrated computer application specialized in the field of human resources must cover a series of fields presented in table no. 1.

Table no. 1 Modules of an IT application in HRM

Module	Utility of the module
Recruitment and selection	In the field of recruitment, the IT solution will provide electronic archives with the applicants' information that ensures the extraction of the information by searching by keywords. Furthermore, the electronic environment itself can remove unnecessary or outdated information.
Payroll	In this area, an efficient IT application must ensure the security of the environment so that employees can access their information on payroll information and provide the human resources department with a quantity of payroll information.
Self-Service Tool for Employees	The computer application must ensure an integrated and secure environment in this field, where employees can search and access individually beneficial and relevant information. This service helps employees manage their situation.
Personnel evaluation	This application module should provide data on employee performance, employee gaps, and training needs.
Personnel files	In this field, the integrated application can offer a series of services: drawing up employment contracts, generating job descriptions, generating employee certificates, and drawing up the general register of employees.

Source: Based on Bocean, 2015; Bocean and Sitnikov, 2015; Dessler, 2019; Wilkinson, 2021

Consequently, starting from the theoretical considerations, we built the following hypotheses of the research:

H1. Integrated IT solutions for HRM have a significant positive impact on efficiency and effectiveness.

H2. The personal assessment is the most influential antecedent in employees' perception of the IT solution for HRM modules.

3. Research methodology

We use artificial neural network analysis to evaluate the implementation of an integrated IT solution for HRM on organizational efficiency and effectiveness, similar to other research methodology (Vărzaru et al., 2021a; Vărzaru et al., 2021b; Nicolescu and Vărzaru, 2021). An artificial neural network analysis involves defining an input layer that includes input variables and an output layer that includes output variables. Connections are established between them through a hidden layer. In our research, the input variables are the modules of a computer application in human resources management (recruitment and selection, payroll, self-service tool, staff evaluation, personnel files). The output variables are the efficiency and effectiveness of human resources. Biases are external influences. Data for all variables were obtained by administering a questionnaire to 239 employees of some Romanian organizations. The structure of the questionnaire is presented in table no. 2.

Table no. 1. Questionnaire structure

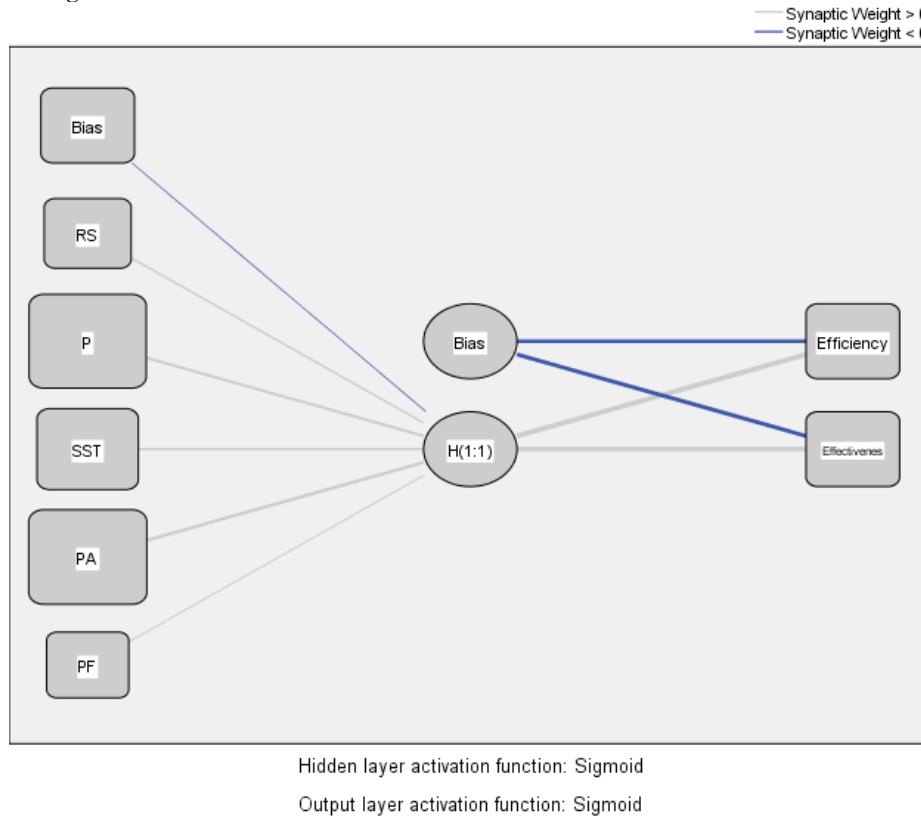
Variable	Scales
Sex	Male, Female
Age	18–30 years, 31–45 years, 46–65 years
Recruitment and selection (RS)	1 to 5 (1—non-important, 5—most important)
Payroll (P)	1 to 5 (1—non-important, 5—most important)
Self-service tool (SST)	1 to 5 (1—non-important, 5—most important)
Personnel evaluation (PA)	1 to 5 (1—non-important, 5—most important)
Personnel files (PF)	1 to 5 (1—non-important, 5—most important)
Efficiency	On a scale of 1 to 5 (1—very small, 5—very high)
Effectiveness	On a scale of 1 to 5 (1—very small, 5—very high)

Source: Own construction

4. Findings

Using analysis of artificial neural networks, we established the synaptic links that are formed between the modules of the integrated IT solution in the field of human resources management, on the one hand, and the efficiency and effectiveness of the organization, on the other hand, through a hidden layer that can be defined as leadership. Figure no. 1 shows the relationships established between variables in a multilayer perceptron (MLP) model.

Figure no. 1. MLP model



Source: Own construction using SPSS v.20

Analyzing figure no. 1, we can conclude that hypothesis H1 is valid. Therefore, integrated IT solutions for HRM have a significant positive impact on efficiency and effectiveness.

Table no.3 presents the coefficients that characterize the relationships established between the modules of the integrated IT solution in the field of human resources management, on the one hand, and the efficiency and effectiveness of the organization, on the other hand.

Table no. 1 Table title (Times New Roman, 10 pts, italic, left)

Predictor		Predicted values			Importance	Normalized importance
		Hidden Layer 1	Output Layer			
		H(1:1)	Efficiency	Effectiveness		
Input Layer	(Bias)	-0.083				
	Recruitment and selection (RS)	0.170			0.112	36.6%
	Pay (P)	0.341			0.300	98.3%
	Self-service tool (SST)	0.224			0.201	65.8%
	Personnel evaluation (PA)	0.384			0.305	100.0%
	Personnel files (PF)	0.136			0.082	26.9%
Hidden Layer 1	(Bias)		-2.177	-2.224		
	H(1:1)		5.507	5.467		

Source: Own construction using SPSS v.20

Table 3 also contains information on the importance of input variants. Starting from the coefficients of the variables and their importance, we can say that the H2 hypothesis is validated. The personal assessment is the most influential antecedent in employees' perception of the IT solution for HRM modules.

5. Conclusions

The broad scope of human resources management activities is evident, even if in some companies, at different times, the interest is shifted only to one or a few, considered of utmost significance in the respective stage of organizational evolution. Overall, the most common personnel-related activities that substantially affect efficiency and effectiveness condition the company's organizational development, namely staff evaluation and payment. On the other hand, much less attention is paid to personnel file management, staff training and development, and recruitment and selection.

Over the past decade, the organization's priorities have also influenced the order in which interest has focused on certain human resource management activities. Thus, the evaluation of the staff dethroned its reward, and the desire to allow development at any level (individual or organizational) encouraged the training and professional training and motivation of workers.

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