



Successful Models of Implementation of e-HRM Systems in the Private Sector in Romania

Aurel TOTOLICI*, Sofia TOTOLICI**, Constanta POPESCU***

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ABSTRACT

The essential condition for attaining excellence in the informatized administration of the Human Resources Management (HRM) activities is the development and implementation of high-performance e-HRM systems. For this reason, any organization, regardless of her nature and dimensions, needs to make use of the implementation of an e-HRM IT system adapted to its specific needs, because the performances of the HR activities largely depend on the correlation of the software tools with the employees' abilities. The identification of the benefits of the e-HRM systems and the impact of these systems on the managerial and, implicitly, organizational performances have become highly interesting subjects, both among the theorists and among the practitioners worldwide. In order to detail the effects and the benefits of the implementation of the e-HRM system, we considered it useful to present a case study focused on a private firm of Romania: Arcelor Mittal Company of Galați, namely a Steel Mill.

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1. Introduction

The term e-HRM appeared in the 1990s, when it was used to name the action of completion of the HRM transactions via Internet or Intranet means (Lengnick-Hall, M. L. and Moritz, S., 2003). Even since its beginnings, it has been suggested that e-HRM has a significant impact on the organization, both on a transformational and on a relational and operational level (Lepak, D.P. and Snell, S.A., 1998, Totolici, S., Totolici, A. and Lukacs, E., 2012, Totolici, A., Popescu, C., Totolici, S. and Lukacs E., 2013). More recently, it has been considered that e-HRM is "an umbrella term, covering all the possible integration mechanisms and all the relations between HRM and IT, and is directed towards the creation of value for the employees and managers concerned" (Bondarouk, T. and Ruel, H., 2009).

At the same time, e-HRM may be perceived as the *set of planning, implementation and application of the information systems (IS) for networks and actors, giving them support, while the latter realize Human Resources activities* (Strohmeier, S., 2007). Evidently, this adoption of the system relies on the positive effects that the e-HRM should have, namely: increasing quality, increasing the strategic role (of the Human Resources), reducing the costs, speeding up processes etc. (Lengnick-Hall, M. L. and Moritz, S., 2003, Totolici, A., Popescu, C., Totolici, S. and Lukacs E., 2013). E-HRM is also considered a "web-based solution taking advantage of the latest web applications technologies to provide the users with a HRM solution online and in real time" (Shilpa V., Gopal R., 2011).

Due to the e-HRM, the specific HR activities may now be accomplished not just by the specialized HR professionals, but also, more and more often, by line managers, IT facilities and by outsourcing (Tremblay, M., Patry, M., and Lanoie, P., 2008).

E-HRM has been divided into three types: *operational*, dealing only with the administrative functions, like salary management and the administration of the personnel-related data, *relational*, which involves the organizational processes of recruitment, continuing training, performance growth etc. and the last type, the *transformational* one, concerned mainly with HR actions, such as: organizational change, strategic re-orientation etc. (Snell, S., Stueber, D., and Lepak, D., 2002, Ruel, H., Bondarouk, T. and Looise, J. K., 2004). If we analyze these types attentively, we can observe that they are similar to the targets of the conventional HRM, this observation leading to the conclusion that the e-HRM should provide support to the traditional HRM, in order to attain the targets the latter has set for itself (Parry, E. and Tyson, S., 2011).

To conclude, the *operational e-HRM* is directed towards the reduction of the costs and an improved efficiency, the *relational* one helps the corporate staff to process, on their own, the information related to HR activities through online continuing training options, performance measurement tools, internal recruitment opportunities etc. Moreover, the managers may speed up certain very important and usually time-consuming

* Ernst & Young, Spain,** Dunarea de Jos University of Galati, Romania, ***Valahia University of Targoviste, Romania. E-mail addresses: aurel_totolici@yahoo.com (A. Totolici), sofia.totolici@ugal.ro (S. Totolici), tantapop@yahoo.com (C. Popescu).

processes, such as, for instance, the selection of the applicants for a job. Finally, the *transformational e-HRM* offers communicational platforms for the employees allowing them to communicate with one another, regardless of their geographic location or local time.

Starting from the literature on the impact of IT systems on HRM activities, it has been noticed that the rapid changes in the technological environment, characteristic for the last ten years, made the traditional approach of the e-HRM systems benefit of a mainly operational perspective, insufficient for highlighting the need to implement such systems in an intensely competitive environment. The organizations worldwide have adapted to this tendency and have started projects for the implementation of some e-HRM systems that integrate components dedicated to each area of interest of the HR departments, thanks to which the impact of the different dimensions of the e-HRM systems (operational, relational and transformational) on the performances of the corporate activities may be evaluated.

2. The implementation of the e-HRM Employee Training Database (ETDB) system in the ARCELOR MITTAL Company of Galați

Arcelor Mittal was created in 2006 through the merger of two world powers of the steel market: Arcelor and Mittal Steel. The new company was named Arcelor Mittal. In this company, one encounters the system and the idea of Indian organization, which combines with the west-European know-how, which has led to important changes in the organizational structure of the newly-created company.

With an industrial presence in over 20 countries situated on 4 continents, the company covers the key steel markets, from steel production to its transformation into finite product. Through its basic values: sustainability, quality and leadership, Arcelor Mittal has assumed the role of a company carrying out its activity in a responsible manner, respecting the health, work security and welfare of its employees, of its contractors and of the local communities.

Arcelor Mittal of Galați is the largest steel mill in Romania, yielding over 50% of the country's steel production. Built in 1960 (under the name of Combinatul Siderurgic din Galați / The Steel Mill of Galați), Arcelor Mittal Galați includes integrated production units with a primary cycle based on furnaces and a production capacity of 5.5 million tons per year. This Steel Mill produces high quality sheet steel, rolled goods, zinc-coated rolled goods. Two thirds of the total production is exported in over 40 countries. The company was privatized in 2001 when it was bought by the Mittal Steel Group. Now undergoing an important modernization program, its aim is to become a model for the steel production in Central and Eastern Europe.

A declared priority of the Arcelor Mittal Group, when it took over the Steel Mill of Galați, was to assure a permanent development of its personnel in harmony with the group's needs and the individual needs in order to obtain the best results.

Along with the implementation of the strategy proposed for Arcelor Mittal of Galați, which had in view the transfer of managerial know-how, the re-projection of the organizational structure, investment programs, and the maximal personnel restructuring program, came as well the cultural transfer, which had the possibility to function as a catalyst meant to realize the vision delineated.

For the top management of Arcelor Mittal Company of Galați, the realization of a profitable growth in the current business context is not something simple, as it is faced with a series of challenges, such as global competition, market consolidation and a deficit of specialists, new legislative regulations and greater expectations from the clients. In order to face all these challenges, it needs to have the capacity to react and to transform its activity rapidly, by means of specialists trained within the company, without sacrificing the company's profitability, transparency or internal control.

In order to put into practice the strategy of re-organization of the personnel structure, the top management of Arcelor Mittal of Galați decided the *implementation of a software instrument* able to facilitate the integration of all the information related to the activities of training and evaluation of the employees' competencies into a unique database. The aim of this e-HRM system is to assure the transparency of the HR data inside the organization and to facilitate the access to any useful information needed to carry out different activities.

The choice of the **Employee Training Database (ETDB) system** was meant to **increase the efficiency of the management processes for the employees' training and competency evaluation programs**, and to keep a detailed record of the employee's performance in the e-HRM application. In order to reduce the volume of the documents on paper created by the administration of the needs of the HR department, the ETDB IT system offers the opportunity of realizing electronic records of the information related to the HR activity in the organization. At the same time, it allows the modification of the records about the employees by simply editing the respective file.

Being an application connected to the company's Intranet system, the **ETDB system offers the following advantages:**

- ◆ much lower implementation and maintenance costs compared to a desktop application;
- ◆ the time dedicated to data update is much lower than in the case of a desktop application;

- ◆ independence in relation to the operation system and the platform of the computer from which the application is accessed;
- ◆ security of the access to the application based on a user name and a password;
- ◆ possibility of rapid and easy access by means of the interface of communication with the company's ERP system;
- ◆ integration with mobile appliances with access to the Internet.

ETDB is an e-HRM system whose **functions** cover both the **operational aspects of administration of the employees' training programs** and inventory of their competencies, and the **strategic aspects of the development and alignment of the goals of the Human Resources Department** to the strategy of Arcelor Mittal Company of Galati. So, this software solution offers advanced modules of: employee performance and career management, competency capitalization, training programs and professional courses management. When they access the main menu of the ETDB system, the users have three **options**:

- ◆ The option "Browse Read Only Forms" allows only **the reading of the files**. So, any employee may access the database and read the "read only" forms. It does not require any password and allows any user to access the information, yet without letting them introduce new information or change the existing information.
- ◆ The option "Enter Edit Data Password Required" requires a password and allows one to **enter, edit and delete data**. It can be used only by the administrator of the database.
- ◆ The option "Exit to Desktop" allows one to **exit from the database**.

Before introducing the records concerning the professional training into the database of the e-HRM system implemented at Arcelor Mittal, Galati, one has to introduce data such as: information on the employee, cost centers, work centers and competencies. Cost centers are usually the names of the departments within the company.

In order to add the cost centers, one needs to access the option "**Add/Edit Cost Centers**". In Figure 1, we illustrated the design of a form for the cost center Maintenance with entries added.

Cost Centre #	Description
003	Surface Combustion Furnace
004	Axle Line - Straightener, Cutting, & Endfinishing
005	Mill 5
006	Mill 6
007	Mill 7
008	Mill 8
009	Mill 9
010	Mill Service
011	Steel Stores
012	Slitting
013	Service - Shipping
014	Scarf Removal
015	Straightener
018	Cutting - Brehms
019	Cutting and End Finishing
025	JNL Trailing Arms
028	Tubing - Salvage & Towmotor
029	Tubing - Overhead Cranes (Bldgs 18, 19, 20, 21)
030	Service - Automotive
031	Ford F Truck - PW96 IP Beam & Knee Bolster
032	CS IP Beam
033	Benders
034	GMT 191
035	Bushing Lines 1 & 2
036	Brace Presses

Figure 1. Example of form for the Maintenance cost center

For adding new data, one has to access the option "**Add Work Centers**" from the main menu. The work centers are the work locations in the department. In the department Lamination, the welding of the plates may be the first work location, and the welding of the extremities may be the following work station. The number of the work center usually starts with the identification number 10; the next would be 20 and then 30 (it grows from 10 to 10). The cost center is selected from the list, and then the number of the cost center is introduced along with the description of the cost center. Once the work centers have been added into the database of the e-HRM system, they will be visible in a window surrounded by a red framework from the basis of the form (Figure 2). The last work center of a cost center shall appear at the end of the list. The work centers may be edited using the option "Edit Work Centers" of the main menu, to open the form. After the work centers have been added, it is recommended to access the option "Exit to menu", to return to the main menu.

Training Records Database

Add Work Centers

Competencies ID Number:

Cost Centre:

Cost Center Number:

Work Centrer Number:

Work Center Discription:

The latest Work Center Number is shown at the top of the list below. Please use the next number in Sequence for the new record.

Work Center Number		Description
005	40	Tailing
005	30	Cut-Off
005	20	Weld Head
005	10	Guildweld

Figure 2. Adding a work center into the database of the ETDB system

Adding the competencies required to approach the specific processes carried out at each work center involves accessing the option “**Add Competencies**” (Figure 3). The algorithm is the following: select the cost center from the available list. When a new database is designed, the first element introduced is the basic competency. For instance, the plate welding process is introduced in the Flattening Mill 5, the basic competency being WELD HEAD OPERATOR. The text describing the competency needs to be introduced with capital letters. The numbers of the basic competencies are introduced as zeros (000). The description of the basic competencies coincides with the name of the qualification. The fields “Competencies ID” and “Comp. W.C. ID” will be filled in automatically.

Training Records Database

Add Competencies

Cost Centre: Competencies ID:

Work Centre: Comp. WC ID:

Core Competency: Qualification Level:

Competency Number: Document Number:

Competency Rev. Level:

NOTE: Red Items Are Required Entries.

Competency Description:

Recertification in Months:

Figure 3. Adding a basic competency at the level of a work center

Once the basic competency has been introduced in the system’s database, the first specific competency can be filled in the field “**Competency Description**” (Figure 4). The identifiers associated to the competencies begin with 010 and grow by 1. Consequently, the first competency is 010, the second 011, the third 012 etc. For qualifications requiring a re-training, an entry needs to be added in the field “**Recertification in Months**”.

Figure 4. Exemplification of the insertion of a specific competency

By accessing the option “**Add Training**” of the main menu, one opens the form “**Employee Training – Add New Record**”, dedicated to the insertion of the recordings concerning the administration of the training programs necessary to the Arcelor Mittal Company of Galati.

For this purpose, one needs to select the name of the employee from the relational database of the ETDB system, and the cost center, work center and the necessary competencies from the lists associated to the form. The level of competencies for a qualification identifier is 0, which means that the employee was instructed for that qualification.

We considered it useful to present as an example the entries in the system related to the welding of the plates, highlighted in Figure 5. The basic competency needs to be introduced before introducing any other competency; so, the basic competency is selected – 000 WELD HEAD OPERATOR, and the qualification level needs to be 0. The option “**Add Another New Record**” is accessed and the steps are repeated for the competency to which the identifier is associated – 010 Plate welding and the date of the training is introduced.

In order to introduce records for other employees at this level, the option “**Add Another Record**” is accessed, or if the recording is the same, except for the information on the employee, one can use the option “**Copy Record**” and can edit the fields in the new recording, as necessary.

Figure 5. Adding a new recording concerning a training program

Once the training of an employee has been added into the database, the levels of competencies need to be updated as new multiple training programs are added. The training levels are updated for the basic competencies. When the basic qualification has been introduced, the qualification level is introduced by the

number “0”. The symbol “✓” can be noticed on the recordings, which means that the employee has been trained in just one element of one training program.

As new competencies are added, the qualification level needs to be updated. If the employee has been trained in a new training program, the stage of the basic qualification needs to be changed into the number “1”, featuring the symbol “⊕”. This means that the employee is undergoing the training and must not be left unsupervised.

When the person in charge of training programs within the firm considers that an employee has acquired multiple competencies and is actively involved in the learning process, his qualification level may be updated to “2”, which is featured using the symbol “⊗”. This means that the employee is undergoing his training and may be left alone to carry out his activities for determined periods, yet he is monitored.

Once the employee has been trained in order to acquire the basic and specific competencies, the qualification level is moved up to “3”, featured using the symbol “⦿”. The employee is now completely trained through a training program, yet he does not have enough experience to train other colleagues, in his turn. The employee may be left unsupervised for a long period of time.

Once the employee has gained more experience and confidence, the qualification level becomes “4”, which is expressed using the symbol “●”. In this stage, the employee can work independently and coordinate training programs.

In order to change the qualification level, one has to access the option “Update And Edit Training” of the main menu (Figure 6).

EmployeeUpdate : Form

Employee Training Updates

1) Select Name From Drop Down List.
 2) Select Cost Center From Drop Down List.
 3) Select Work Center From Drop Down List.

70508 | Bialas, Kazimierz | 007 | Mill 7 | 20

Record Number	Cost Cente	Work Center	Comp. No.	Competency description	Clock Number
2661	007	20	000	WELD HEAD OPERATOR	70508
2662	007	20	012	Standardized Operating Sheets	70508
2663	007	20	010	Hands-on Operator Training	70508
2664	007	20	011	WCRM Overview	70508
2665	007	20	015	Quality Requirements	70508

4) Click on Blue Box Above of the record you wish to open.

Employee: 70508 | Bialas | Kazimierz | Record ID: 2662
 Trainer: | | | Competency ID: 1301
 Cost Center: 007 | Work Centre: 20
 Qualification Level: 0 | Competency Number: 012
 Competency Description: Standardized Operating Sheets
 (MM/DD/YY)
 Date Trained: 10/25/02 | Renewal Period Months: | (MM/DD/YY)
 Hours Trained: | Rev Level: 00 | Date To Retrain: |

5) Edit fields as required.

Qualification Level Legend

0. ✓ Element of training Completed.	3. ⦿ Fully trained, not qualified to train
1. ⊕ In training, must not be left alone	4. ● Fully trained, qualified to train
2. ⊗ In training, can be left alone for short periods. Monitored	

Exit To Menu

Figure 6. Updating the training programs

In order to update the qualification level, one needs to select a name from the list, then the cost center and the work center. The cursor is located on the field marked in blue of the Registration Number, which has the basic qualification 000. The recording will be displayed in the window at the bottom of the page. A new qualification number from the list is selected. If any of the fields needs to be edited, the change can be recorded in this moment. One can select the desired recording by selecting the field marked in blue of the Registration Number. Once the changes have been made, it is recommended to go back to the main menu of the system.

During the updating of the e-HRM ETDB system’s database, for the situation when some descriptions of the competencies introduced are considered inadequate after a while, a form called “Update Competency Descriptions for Existing Training Records” has been created (Figure 7).

Update Competency Descriptions For Existing Training Records

Competency ID:

Competency Number:

Competency Description:

A) NOTE: The Competencies Table Description Must Be Updated Before Updating The Main Table. Select The Competency ID From The Drop Down List.

Competency ID:

Competency Number:

Competency Description:

Record: of 17

B) Click and Hold the Button Until All records Are Updated.

Figure 7. Updating the descriptions of the competencies in the system's database

The recording of the obligatory training is different from other recordings, as it involves the accessing of the cost center for the obligatory instruction. This is not a specific area in a production section, but simply a number for registration. We exemplified this aspect on a cost center described using the identifier 095, designated for the obligatory training (Figure 8). The obligatory training is usually applied in the case of health, work security and environmental security (e.g.: maneuvering a crane, blocking procedures, training in closed areas, first aid etc.).

MandatoryTrainingMenu : Form

Mandatory Training

1) Enter Cost Center For Mandatory Training Required

2) Select Work Center From Drop Down List

<input type="text" value="095"/>	<input type="text" value="10"/>	<input type="text" value="011"/>	Fork Lift Practical
<input type="text" value="10"/>	<input type="text" value="000"/>		FORK LIFT OPERATOR
<input type="text" value="10"/>	<input type="text" value="010"/>		Fork Lift Theory
<input type="text" value="10"/>	<input type="text" value="011"/>		Fork Lift Practical
<input type="text" value="10"/>	<input type="text" value="011"/>		Fork Lift Practical
<input type="text" value="11"/>	<input type="text" value="000"/>		FORK LIFT (mtc)

Figure 8. Example of obligatory training program

All the forms completed by the users of the ETDB system may be saved as reports, which may be edited and transmitted to the HR decision actors in Arcelor Mittal Company, Galați.

Until the implementation of the ETDB system, numerous employees of Arcelor Mital used to participate to training sessions, yet without having the possibility to share the knowledge acquired with other people from the organization, who could have benefited of the expertise gained. Following the implementation of the ETDB system, a competency capitalization process has developed, in which the expertise is used for internal training and professional development. This is an institutional priority in a context in which the need for professional development is growing and the cost for sending the employees to training programs outside the company keeps growing.

Out of the most relevant **benefits** of the implementation of the ETDB system in the Arcelor Mittal Company of Galați, we could highlight:

- ◆ the evaluation of the efficiency of the investments in the development of the employees' competencies, the most efficient areas or the areas requiring interventions from the HR team;
- ◆ the training programs are followed on the level of the cost centers and work centers, permitting to pursue the budget execution on different components, such as: training, evaluations, compensations, benefits, recruitment projects;
- ◆ the information of general interest concerning certain training programs can be accessed by all the employees, which makes it unnecessary for the HR personnel to report them;
- ◆ the evaluation of the capitalization degree for the personnel's competencies and of other performance indicators specific for the company;

- ◆ the existence of a validation mechanism for the introduction of data on different types of competencies, which does not permit any erroneous operation in the system;
- ◆ the possibility of realizing data imports / exports, which may be configured easily, by means of a dedicated module, empowered to work with different file formats;
- ◆ the supply of a real support in the adjustment of the efforts towards the areas with maximal impact in the development of the organization.

3. Conclusions

The case study presented above highlights the essential advantage of the informatization of the HR operations, namely the increased efficiency of the activities carried out in the Human Resources Departments, providing the HR professionals with more time to focus on the strategic tasks and to better manage the human capital of the company under analysis.

The IT system implemented in the company under analysis is characterized by a focus on the transformational dimension of the e-HRM, as it emphasizes HR strategic domains oriented towards competency capitalization via relevant data storage processes, facilitated by an IT&C support. The modules of the e-HRM system dedicated to the management of the activities of recruitment, selection, training, professional competency and performance evaluation illustrate the focusing of the efforts of the HR area on talent management.

The experience of the organization under analysis, following the implementation of the e-HRM systems, suggests that the new HRM approach of the informational era requires not just a clear understanding of the decisional demands of the HR area, but especially the capacity to quantify the technological benefits and their impact on the organization of the firms, notwithstanding the HR function.

The firm approached in this case study has the possibility to explore new strategic instruments, aimed at increasing the efficiency of the HR activities through the realization of an economy of financial resources at the operational, relational and transformational level. At the same time, we propose the integration of the e-HRM systems with other modular IT systems. The advantage of the modularity of the solution is the possibility to rapidly adapt to the specific needs of Arcelor Mittal Company.

Due to the continually changing competitive environment, the main challenge of the companies of the private sector in Romania consists in making the valuable employees loyal to the company, as they can make the difference between the company and its competitors. A high-performance e-HRM system may help preserve the balance between the employees' personal goals and the company's performance goals.

References

1. Bondarouk, T. and Ruel, H., (2009) "Electronic Human Resource Management: challenges in the digital era". *International Journal of Human Resource Management*, 20(3), 505-514;
2. Lengnick-Hall, M. L. and Moritz, S., (2003) "The impact of e-HR on the HRM function". *Journal of Labor Research*, 24(3), 365-379;
3. Lepak, D.P. and Snell, S.A., (1998), "Virtual HR: strategic human resource management in the 21st century", *Human Resource Management Review*, 8(3), 215-34;
4. Parry, E. and Tyson, S., (2011) "Desired goals and actual outcomes of e-HRM". *Human Resource Management Journal* 21(3), 335-354;
5. Ruel, H., Bondarouk, T. and Looise, J. K., (2004) "E-HRM: innovation or irritation. An explorative empirical study in five large companies on web-based HRM". *Management Revue*, 15(3), 364-380;
6. Shilpa V., Gopal R., (2011), "The implications of implementing electronic- human resource management (e-HRM) systems in companies", *Journal of Information Systems and Communication*, 2(1),10-29;
7. Snell, S., Stueber, D., and Lepak, D., (2002), "Virtual HR Departments: Getting out of the Middle, *Human Resource Management in Virtual Organizations*", Greenwich, Information Age Publishing.
8. Strohmeier, S., (2007), "Research in e-HRM: Review and implications", *Human Resource Management Review*, 7(1), 19-37;
9. Totolici, S., Totolici, A., Lukacs, E., "The Research in e-HRM: Relevance and Implications in the Knowledge Society" published in the conference vol. "Risk in Contemporary Economy", Galați, 26-27 oct., 2012; pag. 195 - 200, ISSN 2067-0532;
10. Totolici, A., Popescu, C., Sofia Totolici, Edit Lukacs, "Modeling a trend Pattern for E-HRM Budgets' Dynamics: Evidence from a Case Study Based on a Romanian Software Firm", published in *International Journal of Academic Research in Business and Social Sciences, HRMARS*, vol. 3, no.7, July 2013, p. 98-109, ISSN 2222-6990;
11. Tremblay, M., Patry, M., and Lanoie, P., (2008), "Human Resource Outsourcing in Canadian Organizations: An Empirical Analysis of the Role of Organizational Characteristics, Transaction Costs and Risks", *International Journal of Human Resource Management*, 19(4), 683-715;