

The Impact of Human Resources Information Systems Implementation on the Organization's Performance

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ABSTRACT

This research aims to examine the impact of implementing a Human Resources Information System (HRIS) on an organization's performance. Using data collected from 14 interviewees who are managers, executives, and engineers at the Directorate of Personnel Management, Compensation, and HR systems in the Company of Sonelgaz. We find that the implementation of HRIS in an organization does have an impact and a positive one on the organization's performance in terms of HR processes, time efficiency, information effectiveness, and decision-making effectiveness. However, we also find that HRIS implementation does not have any impact on the cost efficiency within the organization. Theoretical and practical implications were discussed.

KEYWORDS: *cost efficiency, decision-making effectiveness, information effectiveness, HR processes, time efficiency*

JEL CLASSIFICATION: *M15 / M12 / M16*

1. INTRODUCTION

The field of Human Resource Management has been going through a continuous evolution, an evolution so massive to the point where HR functions no longer played a supportive role, and became strategic instead.

One of the main traits of the evolution mentioned above is HRIS or the Human Resource Information System.

Within our research, we have placed a particular focus on the areas where using HRIS might have an impact on the overall performance of an organization, the organization being Sonelgaz in this case. Within the context of that scope, this research aims to answer the following question:

What impact, if any, does the implementation of a Human Resources Information System have on an organization's performance?

Numerous works of research were conducted on the topic of the Implementation of Human Resource Information Systems in an organization; Lieli SUHARTI and Pryanto Ratna SULISTYO, discusses hypotheses concerning the positive effect of implementing a HRIS on an organization from four different aspects: time efficiency, cost efficiency, managerial satisfaction, and quality of information.

Iyad Mouhamed Ali KHASHMAN and Aysar Mouhamed KHASHMAN discuss hypotheses concerning the impact of HRIS applications on an organization from three different aspects: organizational performance, efficiency, and effectiveness. Throughout their research, they

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demonstrate the positive impact of HRIS applications on organizational performance. Moreover, their research recommended that hospitals pay more attention to HRIS applications to maximize organizational performance.

2. HUMAN RESOURCES INFORMATION SYSTEM:

HRIS is “a system that develops current and accurate information for decision-making and monitoring” (Bohlander et al., 2001).

According to (Kovach & Cathcart, 1999), “HRIS is a systematic procedure for collecting, storing, maintaining, retrieving, and validating data needed by an organization about its human resources, personnel activities, and organizational unit characteristics”.

“The typical HRIS consists of 4 to 5 application modules such as; Compensation and equity monitoring, which is considered to be the most important module. Followed by the benefit administration module, the applicant flow module, and the human resource control module” (Yeung & Brockbank, 1995).

There are four main types of Human Resources Information Systems: Operational HRIS, Tactical HRIS, Strategic HRIS and Comprehensive HRIS.

- Operational Human Resources Information Systems;
- Tactical Human Resources Information Systems;
- Strategic Human Resources Information Systems;
- Comprehensive Human Resources Information Systems;
- Limited-Function Human Resources Information Systems.

3. ORGANIZATIONAL PERFORMANCE:

Organizational performance is described as the degree to which a corporation, as a social system with limited resources, can achieve its objectives without depleting those resources or putting undue strain on its personnel.

(Warmington et al., 1977) treated the concept of organizational performance in the most careful and explicit manner in comparison with other researchers in the same period. “In an effective organization, the productivity rate and levels of satisfaction and motivation of its members are high, while rates of turnover, costs, labor unrest are low or absent.” (Lupton, 1977).

However, according to (Katz and Kahn, 1978), the efficiency (ratio of outputs to input) and effectiveness of an organization were parallel, both vital components of the overall organizational performance, which can be assessed through maximizing the total returns of all kinds. In summary, “effectiveness,” “efficiency,” and “relevancy” are three dimensions of organizational performance that have been used as common elements.

4. INDICATORS OF ORGANIZATIONAL PERFORMANCE:

4.1 Quality:

Quality is the key to the success of any organization. Today, customers want high-quality products and organizations that can provide such products at low cost win the rivalry.

“The quality is checked mainly at three levels input, output, and throughput or process quality. Most organizations focus on quality because they have made promises to their

customers about quality of their services and products” (Heckl and Moormann, 2010; Badri et al., 1994).

“The measures of quality are performance, features, reliability, technical durability, serviceability, aesthetics, perceived quality, humanity, and value” (Neely and Platts, 2005).

4.2 Time:

“Time is a very important determinant of the manufacturing performance of the organizations. The time-based manufacturing is an important concern for the manufacturing organizations around the world; in order to achieve a competitive advantage over their competitors” (Koufteros et al., 1998). Neely and Platts (2005) has listed the measures of time performance as follows; time to market, distribution lead times, delivery reliability (to clients), supply lead times, supplier delivery reliability, manufacturing lead time, standard run time, actual run time, wait time, setup time, move time, inventory turnover, order carrying out time and mean(flexibility).

However, White (1996) has chosen to list a much more detailed roll of time performance measures related to strategy. His list goes as follows; used lead time, cycle time, order processing time, response time, material throughput time, distance travelled, decision cycle time, time lost waiting for decisions, percentage of first competitors to market, breakeven time, time from idea to market, average time between innovation, number of changes in projects and engineering time as the strategy-related measures of time.

4.3 Cost:

“The external stakeholders have more concern with the cost-based measures of the performance, so that is why the organizations use cost accounting system which include measures of efficiency and effectiveness, represent an effort to relate internal performance measures to external ones” (White, 1996).

Neely and Platts (2005) has listed the measures of cost performance as follows; manufacturing cost, value added cost, running cost, services cost, and selling price.

However, White (1996) has listed a much more detailed list of cost-performance measures that he thought to be strategic. His list goes as follows; cost relative to competitors, perceived relative cost performance, manufacturing costs, capital productivity, labour productivity, machine productivity, total factor productivity, direct labour cost, relative labour cost, labour efficiency, material cost, inventory cost, scrap cost, repairing cost, cost of quality, design cost, relative R&D cost, distribution cost, overhead, and transactions per product.

4.4 Financial performance:

Historically, financial indicators such as physical value of sales and profits, return on equity, return on assets, etc. have been the best indicator for assessing business performance.

(White, 1996) states that the reason behind companies using financial measures for their performance measurement is the pressure put on them by external groups of stockholders who would be strongly concerned with these sort of performance measures.

5. HOSTING COMPANY AND METHODOLOGY:

Sonelgaz is the historical operator in the field of electric and gas energy supply in Algeria. Created in 1969, Sonelgaz has been working for half a century in the service of the Algerian

citizen by providing him with this essential energy source for his daily life. We chose Sonelgaz due to it being one of the biggest employers in the industrial landscape; by the end of 2021, Sonelgaz had over 93 000 employees of all socio-professional categories, making the use of the HRIS extremely important in the management of the company.

Therefore, such a company might undoubtedly aid in the search for components of the answers to our study statement.

We have followed the qualitative method through a case study, based mainly on interviews. In the process of our research and to bring an empirical dimension to our work, we have conducted several interviews, both structured and semi-structured, with a purposeful sample of Sonelgaz employees.

The selection of interviewees was based on their position's relevance to our research topic. Hence, their ability to answer the questions listed in our interview guide is significant. We started first by interviewing two high-ranked managers (the head of the HR systems and compensation Department and the Principal Research Officer) using a semi-structured guide in order to precise the sub-categories of the five impacts. Once the sub-categories were established, we readjusted them according to the literature review. Then, we chose the twelve other interviewees based on the position they occupied within the company. We chose content analysis as the data processing method because it seeks to capture the interviewees' statements as objectively as possible.

6. RESULTS AND DISCUSSIONS:

The table below represents the demographics of interviewees, which include their both their codes, as well as their position within the directory of Personnel Management, Compensation and HR System.

Table 1. The demographics characteristics of interviewees

N°	Code	Position
1	H1	Research Officer 1
2	H2	Research Officer 2
3	H3	Research Officer 3
4	M1	Management executive 1
5	M2	Management executive 2
6	M3	Management executive 3
7	M4	Management executive 4
8	E1	Engineer of studies 1
9	E2	Engineer of studies 2
10	E3	Engineer of studies 3
11	E4	Engineer of studies 4
12	E5	Engineer of studies 5

Source: made by the authors

Table 2. HRIS implementation impact on HR processes

Category	Sub-category	Frequencies
The impact of HRIS implementation on Human Resource Processes	The implementation of HRIS optimized recruitment process	R2, R3, M3, E1, E2, E3, E5
	The implementation of HRIS improved training process	R2, R3, M1, M3, M4
	The implementation of HRIS increased the data input process	R1, R2, M1, M2, M3, E1, E2, E3, E4, E5

Category	Sub-category	Frequencies
	The implementation of HRIS helped data maintenance process	R1, R2, M1, M2, M4, E1, E2, E3, E4, E5
	The implementation of HRIS improved forecast of staff requirements	R2, R3, M3, E1, E2, E3, E5
	The implementation of HRIS reduced paperwork	R1, R2, R3, M2, M3, M4, E1, E2, E3, E4, E5

Source: made by the authors

First, it can be seen that the overall vision of interviewees is that there is an impact, and a positive one, on HR processes because of HRIS, while it is clear that the impact is present when it comes to recruitment, data input & maintenance, staff requirements and even paperwork loads. It also appears that there is no impact on the training process, which is considered to be of importance in the Algerian workplace, since Algerian laws require that 1% of any company's total payroll to be spent on training and education within the organization.

Table 3. HRIS implementation impact on Time Efficiency

category	Sub-category	Frequencies
The impact of HRIS implementation on Time Efficiency	HRIS help reduce the time spent on recruiting	M3, E1, E2, E5
	the time spent on training was reduced after implementing HRIS	M3, E2, E5
	the time spent on making staff decisions was reduced after using HRIS	M1, M2, M3, M4, E1, E2, E3, E5
	The time spent on inputting data was reduced after the implementation of HRIS?	R1, R2, M1, M2, M3, M4, E1, E2, E3, E4, E5
	HRIS help reduce the time spent on communicating information within organization?	R1, R2, M1, M3, M4, E2, E3, E4, E5
	The time spent on processing paperwork was reduced after the implementation of HRIS?	R1, R2, R3, M2, M3, M4, E1, E2, E3, E4, E5
	The implementation of HRIS reduces the time spent on correcting errors?	R1, R2, R3, M1, M2, M3, E1, E2, E3, E4, E5

Source: made by the authors

Time is a factor of extreme importance in an organization, mainly because it would end up most of the time affecting every other factor of its performance. While interviewees seemed to agree that HRIS does impact their time efficiency, and does so positively. Such an agreement could not be seen on all aspects of time efficiency, more particularly the time it takes for recruiting and that it takes for training, where most interviewees saw no impact caused by HRIS.

Table 4. The impact of HRIS implementation on Cost Efficiency

category	Sub-category	Frequencies
The impact of HRIS implementation on Cost Efficiency	cost per hire was reduced after using HRIS	M3, E3, E5
	HRIS reduce training expenses	M3, E5
	the implementation of HRIS help reduce recruiting expenses	M2, M3, M4, E5
	overall staff's salary expense was reduced	R1, M2, M3, E1, E2, E3

Source: made by the authors

According to our interviewees’ answers, HRIS impact on cost efficiency is not to be seen on any aspect. There was an overall agreement that none of the expenses related to hiring, training, and recruiting were reduced, there was however a non-certainty if the same thing could be said about the total salary expense, where interviewees split into two equally numbered groups, those who saw an impact of HRIS resulting in reduction, and those who saw no impact.

Table 5. HRIS impact on Information Effectiveness

category	Sub-category	Frequencies
HRIS impact on Information Effectiveness	the disseminate information increased after using HRIS	R1, R2, M1, M2, M3, E1, E2, E3, E4, E5
	the level of useful information within the department increased after implementing	R1, R2, M1, M2, M3, M4E1, E2, E3, E4
	the information generated by HRIS help increase the coordination between HR dept. and top administrators	R1, R2, R3, M1, M2, M3, M4, E1, E2, E3, E4, E5
	information generated by HRIS increase the value of organization	R1, R2, R3, M2, M3, E1, E2, E3, E4

Source: made by the authors

Based on answers provided by interviewees, there was a clear increase in the level of useful information generated by HRIS, that information was a key factor in increasing the value of the organization. Not only that, but all the interviewees could also see that the information that HRIS generates leads to an increased level of coordination between HR and Top Management.

Table 6. The impact of HRIS implementation on Decision-making Effectiveness

category	Sub-category	Frequencies
The impact of HRIS implementation on Decision-making Effectiveness	HRIS helps with the effectiveness of HR decision-making	R1, R2, M2, M3, M4, E1, E2, E3, E5
	information generated by HRIS improve decisions on employee pay raises in the organization	R1, R2, R3, M1, M2, M3, M4, E1, E2, E3
	information generated by HRIS improve effective promotion decisions in the organization	R1, R2, M1, M2, M3, E1, E2, E3, E4, E5
	information generated by HRIS improve decisions when hiring the staff	R1, R2, R3, M2, M3, M4, E2, E3

Source: made by the authors

Decisions made within the HR of the company of Sonelgaz seem to have improved entirely because of the information generated by HRIS, most interviewees were able to see the increase in effectiveness of decisions made, and that increase included pay raise decisions, promotion decisions and even hiring decisions.

After careful examinations of the answers that were given in the interviews conducted, as can be seen above, we were able to reach the following conclusion:

The implementation of an HRIS does have an impact, and a positive impact on the performance of an organization, but not on all aspects of it:

- HRIS implementation does impact HR processes, positively so.
- HRIS implementation does impact time efficiency, positively so.
- HRIS implementation does not impact cost efficiency in any way.
- HRIS implementation does impact information effectiveness, positively so.
- HRIS implementation does impact decision-making effectiveness, positively so.

7. CONCLUSION

The results indicate that the implementation of a HRIS does, in fact, have an impact, and a positive one to be precise on the overall performance of an organization in terms of HR processes, time efficiency, information, and decision-making effectiveness.

The findings of this study also confirm what multiple former studies on the same topic have concluded, which is that the implementation of HRIS does not actually have an impact on cost efficiency.

We recommend that Sonelgaz try to examine and understand why their HRIS does not help with their cost efficiency, and try to come up with ways of using HRIS for that very reason, given the importance of cost efficiency on the organization's performance.

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