A Survey on Electronic Human Resource Management Consequences, Its Outcomes and Performances

Manizheh Adli, Sousan Gharib, Mahdis Hakami, Katayoon Pourmahdi

Abstract

Electronic human resource management (e-HRM) is another face of human resource (HR) by over the past few years. This new face of human resource has been occurring based on internet and intranet technology. Due to the importance of human resource management in the firms’ competitive advantages, this research was in attempt to study the role of E-HRM on Aker Oil Company’s performance in Malaysia, to find whether it has any significant effect on HRM productivity and cost efficiency. A total of 170 questionnaires were distributed to respondents by email. From 170 questionnaires distributed 155 were answered completely and were used for analyze. The multiple linear regression method was performed to analyze the effect of e-HRM activities (e-recruitment, e-training, e-compensation, e-communication and e-performance appraisal) on employee satisfaction, also the same method was used to analyze the effect of employee satisfaction on HRM performances (productivity and cost efficiency). The results of this study indicated that information technology has positive effect on employee satisfaction which lead to HRM productivity and cost efficiency. The results of this study also could be useful for the managers of different companies to pay attention on the factors which can motivate more the employees and resulted in employee satisfaction. It can help the organization to reach to their goal which could be the organization performances.

Keyword – Electronic Human Resource Management, Employee Satisfaction, Cost Efficiency, Productivity

1. INTRODUCTION

Technology advancement is one of the powerful driving forces [1]. The technology and digital business communications improvements have changed various organizational activities. The way that organizations perform their task is currently associated to contemporary concepts such as digital business, e-commerce, customer relationship management, human resource management etc. Digital business services are being considered as pertinent and prominent parts of the organization. New technologies allow training to occur at any time and any place which includes the use of computers, software, internet, e-mail, telecommunications, CD-ROMs and DVDs for a wide variety of applications. The internet and web allow employees to send and receive information as well as to locate and gather resources, including software, reports, photos and videos. The internet gives employees instant access to experts whom they can communicate with and to newsgroups, which are bulletin boards dedicated to specific areas of interest, where employees can read post and respond to messages and articles [2].

HR practices and performances are significantly important to the firms’ competitive advantages in the knowledge-based economy which is changing rapidly. HR strategy, practices, and policies can be implemented by the use of e-HRM. Therefore, HR activities are supported by the e-HRM technology to fulfill the organization’s HR requirements through the web-technology-based channels [3]. By the use of e-HRM, a portal enable employees, HR professionals, and managers to observe, analyze, and alter information which is related to HR managing in the organization [4].

Cheapest and fastest way to make HR activities available is self-service e-HRM characteristics but the investment to be made HRM kind of technologies is high [5]. Hence, there is the most noteworthy question, whether the promise outcomes are achieved or not. It has been shown in the literature that there are as many benefits as pitfalls to implementing electronic human resource management applications [6, 7]. According to the HRM performance relationship which was put forward by Boselie, Paauwe [8], there is a significant relationship between HRM activities, HRM outcomes, and performances [9].

Therefore, this study attempts to evaluate the effect of application of information technology in human resource management on productivity and cost efficiency of oil companies in Tehran, Iran. To achieve the purpose of this study electronic recruitment, electronic training, electronic communication, electronic compensation and electronic performance appraisal are few variables which were applied in this study. So the research problem
focuses on the information that helps to understand the effect of e-HRM on oil companies’ performance in Tehran, Iran. There is a need to know the results of the electronic communication, electronic performance appraisal, electronic training, electronic recruitment and selection and whether there is a significant relationship between electronic HRM activities, HRM outcomes, and performances.

This study has following research objectives: 1- To investigate effect of e-HRM activities on employees’ satisfaction. 2- To investigate effect of employee satisfaction on HR performances.

This research highlighted factors which had more effect on employee satisfaction which leads to HRM performances; theoretical and managerial suggestion. In terms of theoretical suggestion, the research enriched the body of literature in effect of e-activities on employee satisfaction toward HRM performances. Due to the best of author knowledge this study was the first research which investigates the wide range of e-activities on employee satisfaction leading HRM performances. Previous studies focused mostly on one or two items, but this study can cover the existing gap in literature to cover wide range of analyses all at once. This research also could provide a foundation for future research in this topic.

The results of this study outlined the most significant and positive e-activities on employee satisfaction. Among various e-activities; e-communication, e-compensation and e-training have significant and positive effect on employee satisfaction, the results also showed that the employee satisfaction has direct effect on HRM performances.

From the managerial perspective, this research could be useful the HRM managers to focus on the factors which has more effect on employee satisfaction. By considering these factors the managers could provide the peaceful environment for employees as well as reach to division’s goal which might be HRM performances. Application of selected e-activities could help HRM managers to leads the division with acceptable productivity and cost efficiency.

2. LITERATURE REVIEW

2.1 Background of Problem

There are, at least, three main reasons for HRM's needs for IT: IT's powerful capability in accelerating processing, in handling complexity of all HRM issues (for example, legislatures reporting requirements), and in measuring the performances HRM practices need to learn and track. The researcher takes particular interest in the last reason because Bontis and Fitz-Enz [10] stresses that measurement plays a central role in our business system not only by evaluating performance, but also by "providing a frame of reference that helps management carry out several important responsibilities" (which includes: discriminate performance expectations in objective quantitative terms, make outcomes more easily understood, compare to standard and/or benchmarks, identify performance gaps, support resource allocation decisions, and recognize and reward performance).

Same rule applies to the performances of HRM: HRM practice can only earn managing power of a more significant level by proving it with quantifiable results delivered. Yet, it was not until 1984 that the American Society for Personnel Administration (the predecessor to Society for Human Resources Management), started developing the "professional standards along the line of generally accepted accounting principles" to measure the performances of HRM. It is widely accepted that there should be two essential dimensions of the HRM performances: the technical HRM which includes the delivery of HRM basics, and the strategic HRM which involves delivering those services to directly support the organizational performances.

In conclusion, debates over the misalignment between the HRM and IT have never ceased. This is arisen from the doubt of its actual effect on helping HRM practices perform, and the main arguments are centered on what function (HRM or IT) leads what (IT or HRM). In addition, scholars have expressed concern over the dysfunctional and unintended consequences of the HRM-related technology, for instance, the "digital divide", and the potential of invaded privacy etc. HRM practitioners are encouraged to fix the HRM-and-IT misalignment by focusing more on IT management issues, and to establish and maintain a truly exceptional relationship between the HRM and IT. It is the researcher's wish and academic ambition to provide more insights and better understanding to this aspect with this study.

2.2 Technology and Business

Most EU, and indeed OECD countries, has set themselves targets for increasing investment in R&D (both public and private) with a more or less explicit assumption that there will be benefits from such investments. Wright, Dunford [11], outlined six channels of economic benefit from research: 1) increasing the stock of useful knowledge; 2) training skilled graduates; 3) creating new scientific instrumentation and methodologies; 4) forming networks and stimulating social interaction; 5) increasing the capacity for scientific and technological problem solving; and 6) creating new firms.
As noted above, economic growth theories suggest that investments in R&D are necessary, but not sufficient, condition for increasing TFP. Indeed, the empirical evidence is not conclusive. Freeman and Kleiner [12], for instance, has argued, that the decentralized economy typically under-invests in R&D relative to what is socially optimal; a finding with which Jones and Fairbank and Williams [13] concur, since they argue that conservative estimates suggest that optimal R&D investment is at least two to four times actual investment. This perceived ‘under-investment’ may help explain why Hennig-Thurau [14] found that R&D makes a relatively minor contribution to productivity growth.

Since the early 2000s, some small north European countries, such as Estonia or Ireland, have achieved rapid growth in BERD, from low levels, allied to high economic growth (at least up to the financial crisis). In both cases, the factors driving growth were partly external: the EU’s Structural Funds led to a massive boost in public investment in R&D and public support for business R&D while inward investment firms account for a significant share of innovation activity. In policy terms, the key may be to develop strategies to absorb industrial learning in the local economy.

2.3 Electronic Human Resource Management

The literature on e-HRM illustrate that the three important goals of e-HRM are improving HR services, cost reduction, and improving strategic orientation [15, 16]. Moreover, four seemingly pressures are mentioned in the following but use of IT may enable the companies to overcome these pressures. Cost managing in HR department is one of these pressures which should be managed in a best way. Firstly, HRM department has to focus on strategic questions. Secondly, flexibility in terms of practices and policy making is necessary for this department. Thirdly, HRM department should be aware of the costs and works as efficient as possible. Finally, being service-oriented towards employee and management is the last important mentioned pressure [16].

According to pervious related human resource management and strategy researches, the connection between human resource management, firm’s strategy and performances were explored By McEvoy and Cascio [17]. Firstly, the human resource role in creating firms’ competitive advantages was exemplified based on relevant literature review. Their multi-level model showed the effects of human resource management on the organizational and individual factors on organization’s strategy. The HR services within organizations have been transformed by Human resource information analytics and systems. There are limited researches which are related to the selection, application, managerial and it is due to complexity of HR and its different rules. Therefore, the study was conducted in 2012 in order to provide a framework that describes the decision characteristics, data need, and HR metrics to decision making, and different levels of HR activity. A number of research propositions and model implications were provided Stone and Dulebohn [18].

2.4 Research Hypothesis

The hypotheses are developed to fulfill the objectives of this study. There are two main hypotheses which involve seven sub hypotheses for this study.

\[ H1: \] There is a positive relationship between e–HRM activities and employee satisfaction.

\[ H1A: \] There is a positive relationship between e-recruiting and employee satisfaction.

\[ H1B: \] There is a positive relationship between e-training and employee satisfaction.

\[ H1C: \] There is a positive relationship between e-communication and employee satisfaction.

\[ H1D: \] There is a positive relationship between e-compensation and employee satisfaction.

\[ H1E: \] There is a positive relationship between e-performance appraisal and employee satisfaction.

Five variables, namely, e-training, e-recruitment, e-communication, e-compensation and e-performance appraisal were used for the analysis. Based on previous quantitative and qualitative studies, information technology plays a potential key role in dedicating more energy to delivering services which have added particular value in the business. E-HRM activities include the single HR functions which are named recruiting, training and development, compensation and benefits, communication, and performances appraisal that are performed in order to provide and deploy the needed human resources.

The effect of e-HR on the HR profession may be seen as both a threat and an opportunity. Firstly, employees require less energy to do administrative and routine tasks. Secondly, e-HR professional who understands both the business operation and information technology are necessary to adopt HR department activities to new changing business condition. Thirdly, E-HR needs HR professionals in order to work with a high educational level of management. They have to understand the business to solve the probable problems [19-21].

On the other hand, this may also mean that with the use of e-HR, fewer HR professionals are needed, because e-HR eliminates the “HR middleman” [21]. More specifically, HR groups will provide various services to line managers, senior management, and employees by an appropriate use of information technology [22]. This can be
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seen as a further opportunity for the HR profession, to take up the role of the developer of e-HR functions. It demands, however, that the HR professional also become knowledgeable in basic IT issues, so that communication using IT is more productive.

The most particular role of internet in the business is communication; so the highest use of technology in different kind of HR functions is internal communication among human resource professions. The anticipated reduction in the area of internal communication can be explained both by the already high use of technology compared to the other functions, as well as by the problems with on-line communication that the organizations experience, which include increased likelihood of misunderstandings and miscommunication. If HR departments are able to provide accurate, adequate, and vast information through the use of information technology, employees and managers will be more involved in the strategic planning process [16, 23]. The HR department becomes more strategic by the use of information technology [21].

H2: There is a positive relationship between employee satisfaction and HRM performances.
H2A: There is a positive relationship between employee satisfaction and HRM productivity.
H2B: There is a positive relationship between employee satisfaction and HRM cost efficiency.

Performances include two variables, namely productivity and cost efficiency. As an effect of e-HRM, cost reduction and lessening the administrative tasks are in most studies mentioned, but we have to consider the extra time that is needed by employees and middle-managers to do their own administrative tasks. Most important e-HRM effect is the company strategy, culture and structure revising which leads to decentralization and standardization of HR process. For example, e-HRM brings changes for the employees and line managers. They get the opportunity to take part in the on-line discussions or to become up-dated in the organizational developments [3, 24]. On the one hand, as it was mentioned earlier in the literature, there is more time for strategic activities by releasing of administrative burdens.

On the other hand, according to Halbesleben and Buckley [25], an investment in technology leads to downsizing staff and reducing employee turnover. There is a study which indicates the considerable relationship between HR practices and HRM outcomes, such as motivation, turnover, commitment, absenteeism and specially satisfaction. Also, it is substantiated the relationship between these outcomes and general performance outcomes at the organizational level, like customer satisfaction, quality, and productivity [26].

Ruel, Bondarouk [16] mentioned four possibilities which enable both HRM and e-HRM activities to attain their overall goals. Firstly, high commitment means workforce is motivated enough to interact with the manager about the changes that occur in the organizational environment. Secondly, High competence indicates the trustful relationship between workforce and management. Thirdly, “employees’ turnover rate” and pay level competitiveness are referred to cost effectiveness. Lastly, higher congruence is related to the internal organization, the reward system and the “input, throughput and output” of personnel. These factors should be organized based on stakeholders’ interest. Depending upon the way, outcomes will to some extend emerge if both individual and parties want to be affected by e-HRM, in line with the defined goals. The literature on e-HRM illustrate that the three important goals of e-HRM are improving HR services, cost reduction, and improving strategic orientation [16].

2.5 Conceptual Framework

Figure 1 shows conceptual framework which is extracted and modified based on Strohmeier (2007). Undoubtedly, electronic human resource management has considerable impacts on industries’ competitiveness or major areas of e-HR use, namely, HR planning; acquiring HR (recruitment)[27]; HR evaluation (performance appraisal); communication; rewarding HR (performance appraisal, compensation and benefits); and developing HR (training and development, career management) [28]. The framework below should illuminate the ongoing debate about the linkages between e-HRM, its outcomes, and performances. Figure 1, is going to show the combination of the HR activities and technology effects on the HR outcome and performances.
3. METHODOLOGY

3.1 Variables and Measures

In this study, questions were designed to find the most important factors that affect HRM items for measuring study variables have been adapted from study of Shane [29]. The questionnaire was divided into three sections: E-HRM activities, HRM outcomes and HRM performances. Items have been shown at Appendix A.

The scale measurement used in this study is five-point Likert scale (Interval data); from 1 represents strongly disagree to 5 represents strongly agree. Likert scale was used to measure the indicating of respondents’ degree of agreement or disagreement. When want to know respondents’ feelings or attitudes about something, consider asking a Likert-scale question [30]. The benefit of these questions is that they are easy to standardize, and data gathered from Likert scale questions lend themselves to statistical analysis.

The questionnaire was pre-tested before it was distributed for actual study. The purpose of conducting the pre-test was to help refine any technical problems the questionnaire might have. A pre-test was carried out to make sure that the wordings of the questions are correct and fit for the employees [31, 32].

Obtaining third party’s view which is not involved in the real survey could minimize the errors that might happen. Based on their comments, changes were made to some of the questions. In addition, elements such as content of questions, wording and form also improved.

3.2 Sampling Design

The data was gathered in this study through online questionnaires and employees were asked to fill them voluntarily. It would take around 15 to 20 minutes to fill the form. The target population for this study is oil field company employees who work in Aker Company, Malaysia. The sampling method used for this study is non-probability sampling (convenience sampling method). The questionnaires were sent to the employees by email and ask them to answer the question properly. This method was chosen because only 170 employees should be surveyed among a large number of employees in Malaysia. The sample size was chosen according to the convenience sampling method [33]. A total of 170 respondents were surveyed in this study.

3.3 Data Analysis Procedure

Data was analyzed by using SPSS version 22. The statistical method used in this study was multiple linear regressions. Multiple regressions were applied in this study because all of the independent variables and dependent variable measures are based on interval data. Regression models were used to study how employees make decisions or form feelings and attitudes. Multiple regression analysis is a general statistical technique used to analyze the
relationship between a single dependent variable and several independent variables [34]. The objective of multiple regression analysis was to use the independent variables to predict the single dependent value selected by the researcher[33]. This method was potentially a very general system for analyzing data in the social and behavioral sciences to describe possible relationships between variables and also used by previous similar studies [35, 36].

4. Data Analysis

4.1 Response Rate and Sample Profile

A total of 170 questionnaires were distributed to the respondents. Out of 170 questionnaires, 155 were usable. 15 questionnaires were excluded from the analysis because the questionnaires were not fully completed.

From a total of 155 samples, 11 samples were age between 18-24, 97 samples 25-34, 31 samples 35-44 and 16 samples 45-55 years old included 98 male and 57 female employees which were participated in this study.

The respondents are divided in four categories which were ages 18-24, 25-34, 35-44 and 45-55 years old to find whether there are differences between these groups. In the total 63.22% of participants are male and 36.78% are female.

4.2 Reliability and Normality Test

Alpha measures the extent to which item responses obtained at the same time correlate highly with each other. Cronbach's alpha ranges in value from 0 to 1 (Cronbach, 1951). Generally, the acceptable alpha values considered for social science research purposes are above 0.65 [37]. Table 1 shows the reliability test for measuring each item in this study.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Cronbach’s Alpha Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-Recruiting</td>
<td>0.682</td>
</tr>
<tr>
<td>E-Compensation</td>
<td>0.803</td>
</tr>
<tr>
<td>E-Training</td>
<td>0.666</td>
</tr>
<tr>
<td>E-Communication</td>
<td>0.775</td>
</tr>
<tr>
<td>E-Performance Appraisal</td>
<td>0.670</td>
</tr>
<tr>
<td>Employee Satisfaction</td>
<td>0.880</td>
</tr>
<tr>
<td>Productivity</td>
<td>0.897</td>
</tr>
<tr>
<td>Cost Efficiency</td>
<td>0.756</td>
</tr>
</tbody>
</table>

The reliability value (Cronbach’s Alpha) for the eight items ranged from 0.682 to 0.897. The high alpha value indicated good internal consistency among the items in each variable. Since all of the factors had high or acceptable Cronbach's Alpha value, all variables were included in the research for further analysis. The factors were e-recruiting, e-compensation, e-training, e-communication, e-performances appraisal, employee satisfaction, HRM productivity and HRM cost efficiency.

A test was conducted to measure the normality of the data. This test was used to determine whether a random variable is normally distributed. If data were not normally distributed, then the dependent variable or at least one of the independent variable may have the wrong functional form or important variable may be missing. This study, based on data obtained from skewness, can measure the normality. Skewness between -1.05 to +1.05 is acceptable for normal distribution [38]. Table 2 shows the skewness of the variable in this study.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-Recruiting</td>
<td>-0.439</td>
</tr>
<tr>
<td>E-Compensation</td>
<td>-0.984</td>
</tr>
<tr>
<td>E-Training</td>
<td>-0.748</td>
</tr>
<tr>
<td>E-Communication</td>
<td>-0.972</td>
</tr>
<tr>
<td>E-Performance Appraisal</td>
<td>-0.425</td>
</tr>
<tr>
<td>Employee Satisfaction</td>
<td>-0.831</td>
</tr>
<tr>
<td>Productivity</td>
<td>-1.000</td>
</tr>
<tr>
<td>Cost Efficiency</td>
<td>-0.549</td>
</tr>
</tbody>
</table>

As shows in Table 2, the averages of skewness among eight variables in this study were between -0.425 to -0.1000. This means that all of the data are normally distributed and regression analysis can be conducted for this research.
4.3 Hypotheses Test Results

4.3.1 Effect of e-HRM Activities on Employee Satisfaction

Multiple regression analysis is used to examine the relationship between e-HRM activities on employee satisfaction. The developed hypotheses are compared with the findings from this analysis to verify whether they are rejected or not. Multiple regressions were used to test H1a, H1b, H1c, H1d and H1e. Table 3 shows the results of multiple regression analysis among e-HRM activities variables against employee satisfaction.

Table 3: Multiple regression analysis among e-HRM activities and employee satisfaction

<table>
<thead>
<tr>
<th>Independents variables</th>
<th>Employee Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standardized β</td>
</tr>
<tr>
<td>e-recruitment</td>
<td>0.011</td>
</tr>
<tr>
<td>e-compensation</td>
<td>0.281</td>
</tr>
<tr>
<td>e-training</td>
<td>0.340</td>
</tr>
<tr>
<td>e-communication</td>
<td>0.345</td>
</tr>
<tr>
<td>e-performance</td>
<td>0.022</td>
</tr>
<tr>
<td>Adjusted R² = 0.752</td>
<td>F =  95.142</td>
</tr>
</tbody>
</table>

Note: ** Significant at the 0.05b Not significant

The R square (Coefficient of determination) was .872, which means 87.2% of the total variance in the dependent variable, could be explained by these items as shown in the above model. The F-ratio of 95.142, significant at p<0.05, shows that the model was reliable.

If the t-test associated with B is significant (If the value in the column labelled Sig. < .05) then the predictor is making a significant contribution to the model. The smaller the value of Sig. (and the larger value of t) means the greater contribution of that predictor (Field, 2005). Based on this equation, e-communication (t=5.476, p<.05), e-training (t=4.874, p<.05) and e-compensation (t=4.799 p<.05), have significant effect on employee satisfaction while there is no significant effect of e-recruitment (t=1.99, p>.05) and e-performance appraisal (t=0.520 p>.05) on employee satisfaction. So based on the data, e-recruitment and e-performance appraisal had no positive effect on employee satisfaction. From the magnitude of the t-statistics, can see that the e-communication, e-training and e-compensation had the greater effect followed by e-performance appraisal and e-recruitment.

Findings of this study showed that e-communication has the highest effect on employee satisfaction. The next factors which have significant effect on employee satisfaction were e-training and e-compensation respectively. These findings show that using email, social media and instant messaging, news group, chat rooms and video conferencing, online training, free online courses, electronic pay check are the factors which influence on employee satisfaction.

4.3.2 Effect of Employee Satisfaction on HRM Performances

Regression analysis is used to examine the relationship between employee satisfaction on HRM performances. The developed hypotheses are compared with the findings from this analysis to verify whether they are rejected or not. Multiple regressions were used to test H2a and H2b. Results has been shown at Table 4 and 5.

Table 4: Regression analysis between employee satisfaction and productivity

<table>
<thead>
<tr>
<th>Independents variables</th>
<th>Productivity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standardized β</td>
</tr>
<tr>
<td>Employee Satisfaction</td>
<td>0.879</td>
</tr>
<tr>
<td>Adjusted R² = 0.771</td>
<td>F =  524.053</td>
</tr>
</tbody>
</table>

Note: ** Significant at the 0.05

Table 4 shows the results of examination relationship between employee satisfaction and productivity. The R square was obtained .879 which means, 87.9% of the total variance in the dependent variable could be explained by this independent variable. The F-ratio was 524.053, significant at p<0.05 shows that the model was reliable.

The regression equation of employee satisfaction was significantly related to HRM productivity, F (1,154) =524.053, p=.000. By using unstandardized coefficients, for every one unit increases in the employee satisfaction, there is a .876 unit increases in the HRM productivity, while keeping other variables constant. However, analysis the Beta standardized coefficients result showed .879 values which are significant at .000. This result indicated that the employee satisfaction has direct and significant effect on HRM productivity.
Table 5 shows the results of examination relationship between employee satisfaction and cost efficiency.

<table>
<thead>
<tr>
<th>Independents variables</th>
<th>Cost efficiency</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standardized β</td>
<td>t</td>
<td>P</td>
</tr>
<tr>
<td>Employee Satisfaction</td>
<td>0.779</td>
<td>15.433</td>
<td>0.000**</td>
</tr>
<tr>
<td>Adjusted R² =0.605</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F = 238.163</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: ** Significant at the 0.05

The R square was obtained .779 (Table 5) which means, 77.9% of the total variance in the dependent variable could be explained by this independent variable. The F-ratio was 238.163, significant at p<0.05 shows that the model was reliable.

The regression equation of employee satisfaction was significantly related to HRM productivity, F (1,154) =238.163, p=.000. By using unstandardized coefficients, for every one unit increases in the employee satisfaction, there is a .721 unit increases in the HRM cost efficiency, while keeping other variables constant. However, analysis the Beta standardized coefficients result showed .779 values which are significant at .000. This result indicated that the employee satisfaction has direct and significant effect on HRM cost efficiency.

5. DISCUSSION

5.1 Discussion of Hypotheses

5.1.1. Hypotheses H1

The hypothesis 1 was designed to examine the relationship between the use of e-HRM activities and employee satisfaction. This hypothesis involved five sub hypotheses:

H1A: E-recruitment has a positive effect on employee satisfaction.

This hypothesis was not supported in this study. The Coefficients results showed at .011 (p=.842, N155) there is no significant and positive relationship between electronically recruitment and employee satisfaction.

Researches show that e-recruiting only attracts greater numbers of candidates than other sources, but not necessarily attracts higher quality applicants or candidates who are most suitable for the companies than traditional sources [39, 40]. Strohmeier [41]discovers: given that some types of candidates may be more likely to use e-recruiting than the others (for instance, "job hoppers" or savvy internet navigators), the use of the e-recruiting systems may actually affect the characteristics of new hires in organizations, and influence the overall composition of the workforce. Strohmeier [41], Strohmeier [41], Thompson, Braddy [42] further argue that there are age, gender, and ethnic differences in reactions to and usage of online recruitment sources, therefore, organizations should not use online recruiting as the sole recruitment sources.

H1B: E-training has a positive effect on employee satisfaction.

This hypothesis was supported in this study. The Coefficients results showed at .340 (p=.000, N155) there is a significant and positive relationship between using e-training and employee satisfaction.

The need to update workers’ knowledge, skills and abilities (KSAs) and to better prepare them for the challenges as our economy has turned into global knowledge economy pushes the use of distance learning among firms. Corporate and government investment in distance learning has skyrocketed since the birth of internet [43]. Organizations spent from $3 billion on technology-delivered training in 1999 to $8.2 billion, an approximately 170 percent increase in investment, in 2000[44]. The popularity of distance learning stems from convenience, flexibility, and the substantial cost savings. Horton [45] notes that the development of computers and electronic communications media have removed barriers of space and time to allow human to obtain and deliver knowledge anytime and anywhere.

H1C: E-performance appraisal has a positive effect on employee satisfaction.

This hypothesis was not supported in this study. The Coefficients results showed at .022 (p=.604, N155) there is no significant and positive relationship between using e-performance appraisal and employee satisfaction.

Technology contributes to appraisal satisfaction through contributing to performance management in two primary ways Cardy and Miller [46]: (1) technology facilitates measuring an individual's performance via computer monitoring in an unobtrusive yet mechanical manner which only requires minimal input from individuals beyond their task performance (for instance, data collected from a call center or data entry jobs by number of keystrokes, error rates, time on task, numbers of calls made.... etc., data like this immediately become both "job content" and "appraisal content"), (2) technology becomes a tool to facilitate the process of writing reviews or generating performance feedback (for example: multi-rater appraisals that supervisors or team members generate online using...
the Computerized Performance Monitoring (CPM) technology, or off-the-shelf appraisal software packages that actually construct evaluation for manager). This may well explain the popularity of CPM technology.

**H1D:** E-compensation has a positive effect on employee satisfaction.

This hypothesis was supported in this study. The Coefficients results showed at .281 (p=.000, N155) there is a significant and positive relationship between using e-compensation and employee satisfaction.

Marler and Dulebohn [47] reports that the decline in lifelong employment relationships and internal labor market, added with the switch to the flatter organizational structures since 1990s has increased the prominence of competitive compensation in attracting and motivating critical human capital in the US. This further necessitates a “closer linkage with the external market and the tools to make rapid changes in compensation in order to remain competitive and attractive to current incumbents and prospective employees”.

**H1E:** E-communication has a positive effect on employee satisfaction.

This hypothesis was supported in this study. The Coefficients results showed at .345 (p=.000, N155) that there is a significant and positive relationship between using e-communication and employee satisfaction.

In a study by Ali and Haider [48], the impact of internal organizational e-communications on employee job satisfaction was investigated. The results discovered that there is significant impact of all three dimensions of e-communications on job satisfaction. Also Tseng [49] studied the e-communication factors which promote employee job satisfaction in Taiwan High-Tech Industry. The results indicated that there is a positive relationship between e-communication and job satisfaction with work, job satisfaction with pay, job satisfaction with promotion, job satisfaction with supervisor and job satisfaction in general.

### 5.1.2 Hypothesis 2

The hypothesis 2 was designed to explore the relationship between the employee satisfaction and HRM performances. This hypothesis involved two sub hypotheses:

**H2A:** Employee satisfaction has a positive effect on HRM productivity.

This hypothesis was supported in this study. The Coefficients results showed at .879 (p=.000, N155) there is a significant and positive relationship between employee satisfaction and HRM productivity.

Ribiere and Sitar [50] stated that by making HRM itself more productive first, HRM will drive organization towards a more productive direction. According to Sunny Steadman, a recruiter for Management Recruiters of Boston, the primary reason people change jobs is to seek out new challenges and opportunities for development [51].

**H2B:** Employee satisfaction has a positive effect on HRM cost efficiency.

This hypothesis was supported in this study. The Coefficients results showed at .779 (p=.000, N155) there is a significant and positive relationship between employee satisfaction and cost efficiency.

Cost-effectiveness is typically expressed as an incremental cost-effectiveness ratio (ICER), the ratio of change in costs to the change in effects. The cost-effectiveness of HRM’s functional tasks getting done concerns the effect of breaking even, speed, cost savings, efficiency increases, and user satisfaction. The cost-saving effect has always been the strongest argument regarding HRM’s use of IT. Numerous scholars and researchers report the HRM-generated cost goes down by completion of jobs sped up, time saved, headcounts cut, resources like paper and electricity saved.

### 5.2 Recommendations for Future Research

Research is a never ending process. It is stimulating because new research problems always surface during the process, along with insights and challenges. This is what knowledge is made out of, and is what researchers are motivated by. Based on the previous discussions of the research findings, several recommendations are made by the researcher as future research and are presented in the following passages.

First, conduct on survey on IT practitioners to gain a better understanding of IT perspective on the relationships between IT and HRM, and IT and organizational performances. This will be crucial to IT practice because, if as suggested (and predicted) by industry experts and scholars that IT is transforming from a "support function" towards a "strategic enabler", Gaining more and better insights of each functional department is the first step towards improving organizational performances and making substantial and strategic contributions to the organizations. Significant information can be drawn from such survey, data collected can be than compared against the data from this survey, and to be used in further cross analysis in order to identify and compare different performance.

Secondly, conduct comprehensive international study using instrument designed for this research to further investigate the relationship between the use of IT and the HRM performances under different technology density, population density, and geography density. Technology, people and population, and geography are three driving forces behind the eHR advancement (IT) and the development of HRM practices, because population determines the composition and the size of the workforce, geography presents the greatest obstacles for the operation of both IT and HRM, while technology is the key to facilitate HRM practices.
5.3 Limitation of Study

Some limitations of this study have been identified. There are some factors that constraints and limit the study to furthers its objectives. The results of this study cannot be generalized to the whole population because of the convenience sampling procedure or non-probability sampling method. Besides, this study was conducted on small sample size. 155 respondents interviewed in this study were not able to reflect the whole population in Malaysia.

Methodological issues were limited to use frequency, cross-tabulation, and multiple linear regressions. On the other hand, further statistical analysis such as factor analysis, ANOVA, and t-test should also be conducted. By conducting these analyses, the research will provide more option in determining the factors that influence HRM performances. Additionally, more accurate and reliable results and data can be obtained. Also, using questionnaire as the only source of data collection made it difficult to determine whether the chosen employees targeted by the researcher gave a true indication. Besides that time constraints was the factors which limit the determination of this study.

Besides that, the findings were limited to only different branch of one company in Malaysia. Further studies, should cover more areas such as other multiple company in Malaysia and other countries. Also the variables measured in this research were limited to the objectives of the research. If more variables were added, additional findings could have been discovered.

Appendix A

Measures for study variables

<table>
<thead>
<tr>
<th>No.</th>
<th>Scale/Items</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>E- ACTIVITIES</strong></td>
</tr>
<tr>
<td>1</td>
<td>Usage of electronic (like portals, social websites) model in selection process may bring transparency in recruitment &amp; selection process</td>
</tr>
<tr>
<td>2</td>
<td>Selecting candidate electronically can lessen the employee turnover</td>
</tr>
<tr>
<td>3</td>
<td>Advanced tools &amp; techniques (like portals, social websites) will enhance success rate of recruitment &amp; selection process.</td>
</tr>
<tr>
<td>4</td>
<td>E-HRM tools enable increased integration of HR processes (e.g. performance management is linked to reward and remuneration). Enhanced reporting is facilitated by e-HRM tools.</td>
</tr>
<tr>
<td>5</td>
<td>I prefer to find my payslip online to give out payslips in printed form.</td>
</tr>
<tr>
<td>6</td>
<td>I agreed that salary calculation is no longer done manually.</td>
</tr>
<tr>
<td>7</td>
<td>The use of electronic devices for salary calculation enhances speed and accuracy</td>
</tr>
<tr>
<td>8</td>
<td>I prefer using e-learning tools to traditional methods in order to learn.</td>
</tr>
<tr>
<td>9</td>
<td>“Traditional” training skills need to be supplemented with additional skills.</td>
</tr>
<tr>
<td>10</td>
<td>Most of the training and development in my companies is not done through e-learning</td>
</tr>
<tr>
<td>11</td>
<td>E-HRM tools have allowed me to better communication through my colleague (more analytical information).</td>
</tr>
<tr>
<td>12</td>
<td>Having a publicly accessible website and intranet is available to all employees in my company.</td>
</tr>
<tr>
<td>13</td>
<td>Information on the company is readily available on its website and intranet facilities make it possible for employees to communicate online.</td>
</tr>
<tr>
<td></td>
<td><strong>E-compensation</strong></td>
</tr>
<tr>
<td>14</td>
<td>The discussion of employee performance is no longer done face to face, indicating the use of contemporary methods of evaluation.</td>
</tr>
<tr>
<td>15</td>
<td>My company is using performance appraisal software for evaluation purposes.</td>
</tr>
<tr>
<td>16</td>
<td>E-HRM tools provide current information that is beneficial to employee related decision making.</td>
</tr>
<tr>
<td>17</td>
<td>E-HRM tools are essential to the role of HR practitioners becoming more strategic.</td>
</tr>
<tr>
<td>18</td>
<td>Fewer errors occur when employee use e-HRM tools.</td>
</tr>
<tr>
<td>19</td>
<td>HR professionals, with the help of e-HRM tools, can play more of an advisory role to line management.</td>
</tr>
<tr>
<td>20</td>
<td>E-HRM information and decision-making tools restrict my ability to make decisions.</td>
</tr>
<tr>
<td>21</td>
<td>The use of e-HRM tools has led to the automation of routine HR work.</td>
</tr>
<tr>
<td></td>
<td><strong>E-OUTCOME</strong></td>
</tr>
<tr>
<td>22</td>
<td>E-HRM tools can be used to improve underlying business processes.</td>
</tr>
<tr>
<td>23</td>
<td>E-HRM tools allow me to work more productively.</td>
</tr>
<tr>
<td>24</td>
<td>E-HRM tools improve quality of services.</td>
</tr>
<tr>
<td>25</td>
<td>HR services have been streamlined and standardized using information technology.</td>
</tr>
<tr>
<td>26</td>
<td>E-PERFORMANCES</td>
</tr>
<tr>
<td>27</td>
<td>E-HRM activities reduce cost spent on transactional tasks.</td>
</tr>
<tr>
<td>28</td>
<td>E-HRM tools allow me to work more cost efficiently.</td>
</tr>
<tr>
<td>29</td>
<td>The use of e-HRM tools is more cost effective than traditional, manual HR practices.</td>
</tr>
<tr>
<td>30</td>
<td>The advantages of e-HRM are outweighed by the cost implication.</td>
</tr>
</tbody>
</table>
REFERENCES


