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Mohammad F. Islam, Md. N. Nabi, Tania Akter

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*Mohammad F. Islam**

Department of Business Administration

Stamford University Bangladesh

Md. N. Nabi

Department of Textile Engineering Management

Bangladesh University of Textiles (BUTEX)

Tania Akter

School of Business

Britannia University

Corresponding author*: Mohammad F. Islam;
Email: hemelmbaru@gmail.com

Electronic Human Resource Management (E-HRM) for Sustainability of Textile Industry: Evidence from Bangladesh

Abstract

With the development of technology, the world has become faster with new innovations to make the working life easier, smarter and competent (Hossain & Islam, 2015). In the present knowledge economy, the performance of HRM undoubtedly related to organizational success (Masum et al., 2015).

But, HRM departments of most of the countries are no longer doing file or paperwork, rather with the invention and advancement of IT, efficient, faster and cost saving. Moreover, the world is moving towards 4IR, where technologies, AI, VR will the big player. In this regard, E-HRM is to create a sustainable and competitive advantage through employee engagement. Textile is one of the major successful manufacturing sectors with greater contribution to the national economy of Bangladesh. So, the purpose of study is to ascertain the relationship between five E-HRM practices (independent variables) and organizational sustainability as steady increase in profit and market growth (Dependent variables). Cronbach alpha has been used to check the reliability and validity of variables. Pearson Correlation and OLS Regression analysis have been used to show the relationship with the help of SPSS. After analyzing the data, it was revealed that all the E-HRM functions have positive correlation with organizational sustainability. Notably, E-recruitment & selection (ERS) is the most significant function (0.006) and HRIS & e-communication (HRISC) relatively low significant (0.045) function among all E-HRM functions. The study will hopefully be proven useful for decision makers of various firms who wish to reduce costs and increase profit by adopting environment friendliness to gain sustainable development.

Keywords: E-HRM, Textile industry, Sustainable development, Bangladesh

1. Introduction

1.1. Background

In the present knowledge economy, the performance of HRM is undoubtedly related to organizational success (Masum et al., 2015). The managers of 21st century envision that Information Systems will have a major influence on their style of decision making (Varma & Gopal, 2011). Human Resources Management (HRM) becomes an important and key element to run organizations in irrespective to the nature and size of business. Recently, traditional HRM has been shifted its attention on strategic management of organizations through a significant contribution in strategic workforce analysis and knowledge sharing to achieve organizational goal. This shift is moderately attributed to human resource (HR) technologies such as E-HRM and human resource information systems (HRIS). Some researchers claimed that E-HRM has been interchangeably coined with Intranet-based HRM, virtual HRM, web-based HRM, and HRIS (Masum et al., 2015).

E-HR (or online HRM) refers to the "use of a wide range of Internet-based applications for conducting HRM related transactions" (Lengnick-Hall and Moritz, 2003). Strohmeier (2007) defined e-HRM as: the planning, implementation and application of information technology for both networking and supporting at least two individual or collective actors in their shared performing of HRM activities. In a search for balance, some authors (Ruël, Lawler and Looise, 2004) defined e-HRM as 'a way of implementing HRM strategies, policies, and practices in organizations through the conscious and direct support of and/or with the full use of channels based on web-technologies'.

Typically, E-HRM is defined as an integrated information system that comprises some applications of HR supply and demand forecast, HR planning, staffing information, recruitment and selection, information on training and development, pay increase, compensation forecast, promotion-related information, employee relations and so on (Masum et al., 2013; Rodriguez & Ventura, 2003; Bondarouk et al., 2009). Another definition simply defines as: "e-HR (or online HRM) refers to the use of a wide range of Internet-based applications for conducting HRM related transactions" (Lengnick-Hall and Moritz, 2003)

E-HRM (also known as paperless or green HRM) typically includes using less possible paperwork at all HR functions like recruitment & selection,

training, performance review, etc. to create a sustainable, environmentally friendly and competitive advantage through employee engagement (Hosain & Rahman, 2016). E-HRM (Electronic- Human Resource Management) is a web-based solution that takes advantage of the latest web application technology to deliver an online real-time Human Resource Management Solution (Gowan, 2001).

Due to its ease of speedy accessibility to information related to employees, E-HRM can improve the strategy of decision making process, and therefore it is considered as a strategic partner of the firms (Rodríguez and Ventura, 2003).Therefore, E-HRM is visibly grounded as well as established on diversely rooted expectations and constructive circumstances of functional human resources process, such as reduction of training and development costs, speeding up HR planning, improving manpower quality and efficiency, maintaining e-database of employees, and having a stronger strategic partnering function for HRM activities within organizations and stakeholders.

HR is evolving into a technology-driven process due to the following reasons (Hussain, Wallace, & Cornelius, 2007; Johnson and Gueutal, 2011): To streamline HR processes and reduce administrative burdens, Reduce HR administration and compliance costs, Compete more effectively for global talent, Improve service and access to data for employees and managers, Provide real-time metrics to allow decision-makers to spot trends and manage the workforce more effectively, Enable HR to transform so it can play a more strategic role in the business.

According to Biswanath (2000), in an organization the most valuable input is the human element. The success or failure of an organization depends to a large extent on the persons who manage and run the organization. E-HRM has the potential to change all traditional human resource management functions. Employees do not have to be in the same geographic areas to work together (Noe et al., 2000). The development of e-HRM systems is growing, allowing the HR function to become more strategic. The nature of HR departments has changed because of the development of e-HR (Varma & Gopal, 2011). But, most of the studies on E-HRM were undertaken in USA and Europe (Yusliza and Ramayah, 2011; Rawash and Saydam, 2012). Conversely, in the context of developing countries (e.g. Bangladesh, India, Nepal, and Pakistan), e-HRM research and its application is still in its early stage (Bondarou et al., 2017; Johnson et al., 2016; Sinha and Mishra, 2014; Abbasia et al., 2016; Hosain, 2017). Private sector enterprises are clearly

well ahead than the public sector in recognizing and implementing E-HRM practices (Samaduzzaman and Zaman, 2012). In another study with 22 service sector firms, Hossain and Islam (2015) found that only 40.91% firms were practicing E-HRM. A sustainable enterprise genuinely contributes to sustainability by delivering economic, social and environmental benefits simultaneously, i.e., achieving the triple bottom line (Dyllick & Hockerts, 2002; Elkington, 1998). These three stands for profits, people and planet. For running a business organization, sustainability is big ask and ultimate vision of a business entity. Sustainability generally implies a simultaneous focus on economic efficiency, social equity, and environmental accountability performance (Barry & Elizabeth, 2007).

All in all, with all of the positives of E-HRM, none of study was conducted about the impact of E HRM implantation on the organization sustainability. So, there is further scope to study on E-HRM with its impact particularly in the sustainability of organization.

2. Research Methodology

The broad objective of this empirical study is to identify the relationship (if any) between E-HRM and firm sustainability. However, sequentially, the study will attempt to provide some realistic suggestions on the basis of findings.

Nature of the study

The study is quantitative in nature. Mainly primary data have been used to administer the study. Secondary data also used where needed. Furthermore, some observations have been done to get some ideas by experiencing the actual pictures of the factory and office environment.

Sampling Plan

Convenience sampling has been used in that current study. There are some reasons behind that to choose that technique. According to Dörnyei (2007), where members of the target population that meet certain practical criteria, such as easy accessibility, geographical proximity, availability at a given time, or the willingness to participate are included for the purpose of the study. It is also referred to the researching subjects of the population that are easily accessible to the researcher (Saunders et al., 2012; Given, 2008). Primary data has been collected from 100 respondents from 5 reputed textile companies located at Gazipur and Narayangonj. The main objective behind selecting these two areas is that these are the hubs for textile sector in

Bangladesh. Therefore, it has been expected that the sample firms would be best representing the textile industry standards in Bangladesh. Still the number of industries, number of samples (Table 1) and the sampling technique may hinder to generalize the findings of that study.

Table 1: Population and sampling plan

	Extent	Primary data has been collected through to take face to face interview from the 100 participants from supervisors to top level managers of 5 textile companies located at Gazipur and Narayangonj.
	Time of Primary data collection	November- December, 2017
Research tools	A Structured questionnaire	
Sampling Technique	Non probability convenience sampling procedure was used for selecting samples.	
Scaling technique	7 points Likert Scale	
Data Used	Primary and secondary	
Major Sources of Secondary data	Firm's Annual Report of the year 2016 & 2017	
Sample Size	100	

Questionnaire design

The questionnaire was checked properly to find out whether it was understandable to everyone and if there is any improvement needed. The survey questionnaire had 24 questions altogether. A seven point Likert scale was used to measure E-HRM and organizational sustainability where 7 regarded as strongly disagree, 6 for moderately disagree, 5 for slightly disagree, 4 for undecided or no comment and 3 for slightly agree, 2 for moderately agree and 1 for strongly agree. The study adopted seven (7) point likert scale as that, Increase the number of points on the Likert scale, to enhance reliability, validity, discriminating power and respondent preferences (Johns, 2010). The psychometric literature suggests that having more scale points is better but there is a diminishing return after around 11

points (Nunnally, 1978). The categorical distribution of statements on the questionnaire has been highlighted on Table 2.

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Table 2: Distribution of statements according to the variables

Independent Variables	Number of statements
E-recruitment and selection	4
Electronic and virtual training	4
E-performance management	4
E-compensation and benefit	4
HRIS and e-communication	4
Dependent Variable	
Organizational sustainability	4
Total	**24**

Reliability tests

The Cronbach Coefficient was used to investigate the inter item consistency and reliability (Walsh, 1995). Nunnally (1978) is often associated with the assertion that instruments used in basic research should have reliability of .70 or better. Cronbach alpha for e-recruitment & selection 0.7321, for electronic & virtual training 0.7233, for e-performance management 0.7101, for e-compensation & benefit 0.7344, for HRIS & e-communication 0.7546, and for organizational sustainability, it was 0.8931. Therefore, it is evident that each instrument's internal reliability and validity were satisfactory (Table 3).

Table 3: Reliability statistics

	Variable	Number of items	Cronbach's Alpha
Independent variables	E-recruitment and selection	4	0.7321
	Electronic and virtual training	4	0.7233
	E-performance management	4	0.7101
	E-compensation and benefit	4	0.7344
	HRIS and e-communication	4	0.7546
Dependent variable	Firm's sustainability	4	0.8931

Conceptual framework and Research Hypotheses

In this study, there are 5 independent variables (5 E-HRM tools or practices) and single dependent variable (Sustainability). Based on the previous literatures and discussions, the following theoretical framework and research hypotheses have been developed (Figure 1).
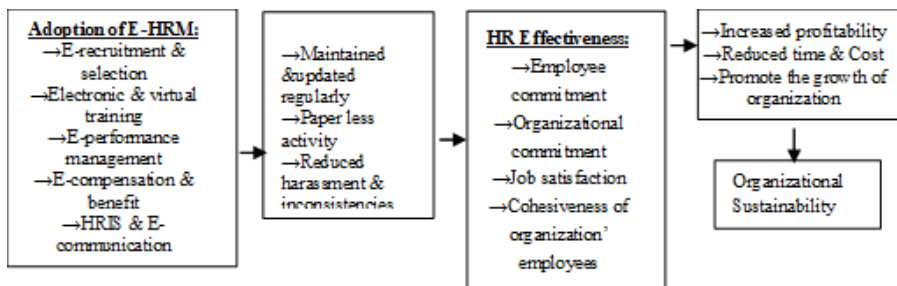

Figure 1: Conceptual framework of the research

To achieve the objectives of the study mentioned in the previous section, the following hypotheses are tested (Figure 2):

- H1: There is a positive relationship between e-recruitment & selection and organizational sustainability.
- H2: There is a positive relationship between electronic & virtual training and organizational sustainability.
- H3: There is a positive relationship between e-performance management and organizational sustainability.
- H4: There is a positive relationship between e-compensation & benefit and organizational sustainability.
- H5: There is a positive relationship between HRIS & e-communication and organizational sustainability.
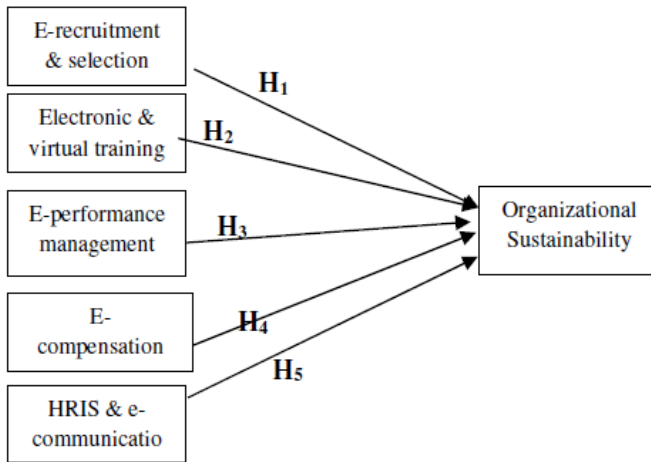

Figure 2: Hypotheses of the study

Model specification

To test hypothesis 1,2,3,4 and 5 the study estimates the following Ordinary least square (OLS) regression models:

$$SUS_{i,t} = \beta_0 + \beta_1 ERS_{i,t} + \beta_2 ET_{i,t} + \beta_3 EPM_{i,t} + \beta_4 ECB_{i,t} + \beta_5 HRISC_{i,t} + \varepsilon_{i,t}$$

Where,

B_0 = Constant

B = The Coefficient of the explanatory variable

i , t = Explanatory variable

Є $_{i, t}$ = The error term

And, SUS represents Firm's sustainability (Dependable variable) and ERS, ET, EPM, ECB and HRISC represent E-recruitment and selection, Electronic and virtual training, E-performance management, E-compensation and benefit and HRIS and e-communication respectively. Table 4 explains the variable definition with their expected signs of relationships and sources from where variables are incorporated.

Table 4: List of variables, labels, expected signs and relationship in the regression

Variable levels in the OLS	Description of variables	Expected Signs	Relationship in the Regression	Sources
Dependable Variable				
Sustainability	Sustainability generally implies a simultaneous focus on economic efficiency, social equity, and environmental accountability performance			(Ehnert, 2000; Mazur, 2013; Barry & Elizabeth, 2007)
Independent Variable				
ERS	The **E-Recruitment & selection** is the process of hiring the potential candidates for the vacant job positions, using the electronic resources, particularly the internet.	(+)	ERS has a significant positive relationship with firm's sustainability	(Greiner, 2004)
ET	E-Training is the electronic-based training and development activity.	(+)	ET has a significant positive relationship with firm's	(Bondarouk & Ruel, 2005; Stone, 2006)

			sustainability	
EPM	E-Performance Management, a web-based tool, has been designed to appraise employee performance	(+)	EPM has a significant positive relationship with firm's sustainability	(Karrer and Gardner, 2004)
ECB	E-Compensation & Benefit is the planning, implementation, and application of information technology in managing of compensation & benefits	(+)	ECB has a significant positive relationship with firm's sustainability	(Ball, 2001)
HRISC	HRIS stores, processes and manages employee data. While, E-communication is providing information & communicate with employees by electronic means	(+)	HRISC has a significant positive relationship with firm's sustainability	(Bondarouk & Ruel, 2009; Martin, Whiting and Jackson, 2011; lrich, 2002)

3. Analysis & Findings

Demographic profile of the respondents

All the respondents in this study are supervisors, mid and top-level managers of five textile companies. Therefore, it was expected that they have adequate knowledge about E-HRM practices and organizational sustainability (steady profit growth). There were some managers who directly involved in different management levels (from top to bottom) and have sufficient knowledge regarding the application of E-HRM practices and its contribution on profitability which is the major concern of interest of this study. The demographic profile of the respondents is as below (Table 5 and 6).

Table 5: Organizational distribution of the respondents

Name of the organization	Number of respondents (Supervisor and mid-level managers)	Number of respondents (Top level managers)	Total respondents
UHM Limited	10	9	**19**
Libas Textiles Limited	10	13	**23**
Echotex Limited	9	9	**18**
Square Textiles Limited	10	12	**22**
Viyellatex Limited	8	10	**18**
Gender	**96 (Male)**	**4 (Female)**	**100**

Table 6: Demographic profile of the respondents

Sex	96 (M)	4 (F)	100 (Total)		
Length of service	7 (<2)	23 (2-5)	28 (5-10)	42 (10>)	100 (Total)
Knowledge of E-HRM	11 (Not at all)	28 (Little)	36 (Good)	25 (Excellent)	100 (Total)

The respondents are directly involved in different management levels (from top to bottom) and have sufficient knowledge regarding the application of E-HRM practices and its contribution on profitability which is the major concern of interest of this study.

Investment in E-HRM: Evidence from the selected firms

After the study investigation, the approximate investment on electronic HRM has been found as below (table 7) (in percentage):

Table 7: Investment on different components (areas) of E-HRM in studied firms

Company names	Area of investment (in %)			E-HRM investment as percentage of Operational E-HRM
	Installation	**Training**	**Maintenance**	
UHM Limited	19	12	7	38
Libas Textiles Limited	25	15	6	46
Echotex Limited	34	15	10	59
Square Textiles Limited	38	20	9	67
Viyellatex Limited	50	20	18	88
Average investment on E-HRM				**59.6 (Aggregate)**

From the table, it is evident that Viyellatex spends highest investment on E-HRM as percentage of HRM whereas UHM Limited has the lowest investment. The same result has been shown in Figure 3.
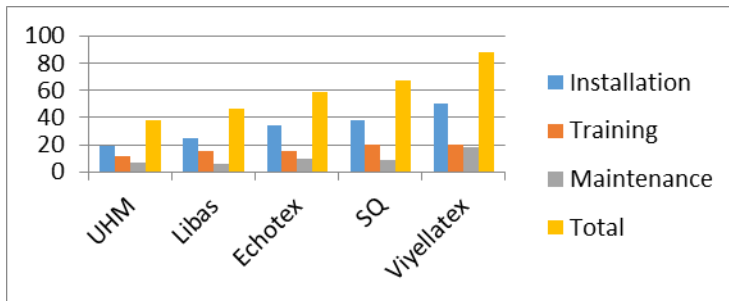

Figure 3: Investment on different areas of E-HRM as percentage of HRM expenses

Relationship between EHRM practices and organizational sustainability

Secondary data from the annual reports of the five textile firms have been used to depict the relationship between application of/investment in E-HRM and organizational sustainability (profitability). Table 8 shows the relationship between E-HRM and profitability of the firm under this analytical study.

Table 8: Collected from annual reports of the firms between 2016 and 2017

Company names	E-HRM functionality (in %)	Profitability growth between 2017 and 2018(in %)
UHM Limited	38	3%
Libas Textiles Limited	46	9%
Echotex Limited	59	10.8%
Square Textiles Limited	67	13%
Viyellatex Limited	88	17%
Average functionality of E-HRM	**↑59.6 (Aggregate)**	**↑10.56 (Aggregate)**

It can be observed from the above table that the firms who has invested more or where there is more E-HRM practices, enjoying higher profit growth rate.

Pearson's Correlation for selected EHRM variables and organizational sustainability:

Table 9: Pearson's Correlation for selected independent variables and organizational sustainability

EHRM Functions	Organizational sustainability
E-recruitment and selection	0.66
Electronic and virtual training	0.57
E-performance management	0.61
E-compensation and benefit	0.52
HRIS and e-communication	0.59

The relationship has been depicted with the help of single line diagram in Figure 4.
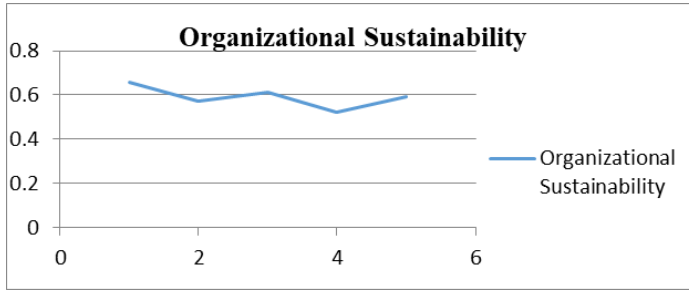
Figure 4: Single line diagram to show the correlational relationship between the independent and dependent variables (1=ERS, 2=CVT, 3=EPM, 4=ECB and 5=HRISEC)

From the above table and figures, it can be observed that, all the independent variables have positive correlation with organizational sustainability (steady growth in profit). Therefore, it can be concluded that E-HRM has positive relationship with organizational sustainability in average, that is, the application of electronic HRM is conducive for the organizational sustainability and growth.

Impact of E-HRM practices on firm's sustainability

Table 10 shows the results of the multiple regression analysis. The table shows the association between sustainability of the firm and experimental variables. The coefficient of coordination R square, F ratio, beta coefficients and t statistics for the regression model and summarized results of the dependent variable on the explanatory variables are shown in Table 10. The result indicates an R square value of 0.544 and an F value of 20.088, which is significant at 0.000 level. Both these values suggest that a significant percentage of the variation in sustainability of the firm can be explained by the variations in the whole set of independent variables.

Table 10: OLS regression results (N=100)

Variables	Standard error	Coefficients	Beta t values	Significance
β 1= ERS	0.034	1.148	2.851	0.006***
β 2= ET	0.000	0.406	3.804	0.012**
β 3= EPM	0.322	0.129	2.309	0.024**
β 4= ECB	0.155	1.994	1.947	0.035**
β 5= HRISC	0.159	0.070	2.003	0.045**

Notes: *$p < 0.1$, two-tailed; **$p < 0.05$, two-tailed; ***$p < 0.01$, two-tailed; R Square =0.544; Adjusted R squire = 0.523; F value =20.088; F significance = 0.000

If the independent variable ERS is increased by one unit, the dependent variable increases by 1.148 with the standard error (SE) = 0.034, beta t values= 2.851 and significance at the 0.006 level. The result suggests that ERS is positively associated with the firm's sustainability. This supports H1 that the firm's sustainability is positively related with ERS.

The most significant among the independent variable is EPM. The regression coefficient for the variable 0.129, which is positive and statistically significant at the 0.024 level ($p < 0.01$, two-tailed). This also supports the H3 that the firm's sustainability is positively related with EPM.

With regard of ECB, this study suggests that firm's sustainability is positively but comparatively less significant among other independent variables at the 0.035 level ($p < 0.05$, two-tailed) suggesting that the firm's sustainability is positive with relation to ECB.

ET is also positively and significantly related with the firm's sustainability at 0.012 level ($p < 0.05$, two-tailed) while HRISC is positively related like all other variable with firm's sustainability at 0.045 level. And, interestingly all the related hypotheses are accepted as expected which we is summarized in Figure 11.

Table 11: Summary of hypothesis testing

Variables Labels in the OLS (Independent Variables)	Dependent Variable	Significance Level (P value)	Accepting Hypothesis	Results
β 1= ERS	Firm's Sustainability	0.006	Yes	Supported
β 2= ET	Firm's Sustainability	0.012	Yes	Supported
β 3= EPM	Firm's Sustainability	0.024	Yes	Supported
β 4= ECB	Firm's Sustainability	0.035	Yes	Supported
β 5= HRISC	Firm's Sustainability	0.045	Yes	Supported

4. Policy Recommendations

On the basis of above findings, some recommended steps can be taken to improve the current scenario. The recommendations are provided below:

- Motivate the employees: The first and foremost thing to do is to inform, inspire and motivate the entire employee, from top to bottom, regarding the usefulness of E-HRM for the organization and for them. Once the employees are motivated, they will accept the electronic HRM as their blessings, not as burden and risk.
- Proper training: One of the major causes of resisting E-HRM is that the employees do not have adequate knowledge regarding the use of the system. Therefore, the staffs should be provided substantial training before implementing the system.
- Investment in IT: In Bangladesh, a major setback regarding E-HRM is the lack of investment from the companies. The firms must understand that investing in IT is a long-term investment and the result will not be immediately seen. It is a necessary but complicated investment that will provide return on a longer time basis. In addition investing to the system itself, the firms may invest some fund on making and maintaining some IT personnel. Such

experts will reduce the cost of hiring external experts to maintain the system.

- Ensuring the safety of private information: The companies should take adequate measures to ensure the safety and security of personal information of the employees. This issue is related to the ethics of that employee or employees who maintain and record the information.
- Proper feedback: There should be feedback meetings in a regular interval regarding the system installation, implementation and maintenance. Such meetings are useful to keep everyone informed about what is actually going on and how to improve future based on individual and collective suggestions.
- Investment, not expenses: There is a common mistake to treat money spent on E-HRM as expenses. The idea is absolutely wrong. Any money spent on IT or E-HRM is a long-term investment, in no way it is an expense or cost. Firms should be patient regarding the results as they gradually come on a long-term basis.

5. Conclusion

The nature of doing business today is rapidly changing due to increased competition, new technological advancement, changing nature of various stakeholders' needs and other industry, micro and macro environmental changes. As a crucial factor of production, human resource is playing a significant role for the firms in achieving the organizational goal and sustainable development. The recent decades evidenced some noteworthy developments in this area which can be termed as transformation from manual or traditional HRM practices to electronic human resource management (EHRM) practices. Electronic human resource management (E-HRM) is an internet-based structure that is developed to implement human resource policies, practices, and tactics to achieve the organizational goals. Adopting E-HRM for managing human resources is an emerging trend in business, industrial and management domain. Whereas, the greater part of EHRM studies have been conducted on developed countries, a little focus has been given on developing or least developed countries. However, comparatively a few studies have been examined on some developing countries, particularly in Bangladesh.

Therefore, it is hoped and anticipated that this very initial and empirical study on this priority sector will be very helpful for the managers and owners to implement the E-HRM practices at their companies on the basis of the findings. E-HRM can be beneficial as it can save unnecessary costs,

increase efficiency and reduce the waste of working hours. In addition, such study might also be useful for the academicians, practitioners and analysts who wish to do some research on E-HRM application in this sector in near future. As it has been said that it is one of the initial attempts to investigate the application of E-HRM on sustainability at textile sector, the findings of this study can be used as a yardstick for further research in this very important field.

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