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Investigation on the precursors to and effects of human resource information system use: The case of a developing country

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Abstract: There is an inadequate understanding of the successful use and effects of a human resource information system (HRIS) in a developing country context. Given this backdrop, this study aims to explore the precursors to and effects of HRIS use in a developing country. A research model was developed after studying the existing literature, and a questionnaire was developed accordingly to collect data through a purposive sampling method. The research data were obtained from different companies in Dhaka, Bangladesh. The collected data were analyzed using the partial least squares method, a statistical technique based on the structural equation model. The results show that all four hypothesized precursors are significant predictors of the purposes for using an HRIS, and the purposes for using an HRIS are significantly connected to all of the resulting variables except one. The theoretical contribution of this study is that it serves as further evidence for the appropriateness of using Rogers' innovation attributions to gauge different dimensions of the intention to use an HRIS, and Remenyi's and Zuboff's information technology frameworks are used to measure the outcomes of the intention to use an HRIS. The practical contribution of this study is that information technology seems to

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PUBLIC INTEREST STATEMENT

The higher rate of HRIS adoption among the organizations' in developing countries has opened a prodigious prospect to use information technology in HR department. This study aims to explore the precursors to and effects of HRIS use in a developing country. The research data were obtained from HR professionals of different companies in Bangladesh. It reveals that relative advantage, compatibility, complexity, and visibility are significant predictors of the purposes for using HRIS. This study serves as further evidence for the appropriateness of using Rogers' innovation attributions to gauge different dimensions of the intention to use an HRIS. Information technology seems to empower HR professionals and increase the value of their work. This study can serve as guidance to HR professionals in the execution or implementation of new IT systems or processes. The organization can now offer a more suitable execution plan as it can take advantage of the features of innovation.

empower human resources professionals and increase the value of their work. This study adds value to the existing literature on HRISs by focusing on a developing country setting.

Subjects: Asian Studies; Business; Management and Accounting; Industry and Industrial Studies; Information Technology

Keywords: HRIS; information technology; structural equation modeling; innovation; developing country

1. Introduction

Over the last two decades, organizations have faced a sizable number of changes due to globalizations, the rapid advancement of technology, the advent of the knowledge-based economy, and competition. As a result, human resource (HR) activities are also changing rapidly to keep pace with these organizational changes (Park, Gardner, & Wright, 2004). Thus, the traditional HR systems previously used in practice have become obsolete and insufficient with the passage of time (Beckers & Bsat, 2002). Through faster information processing, improved employee communications, greater accuracy in information, lower costs of manpower, and improvements in overall HR functionality, a human resource information system (HRIS) can improve administrative efficiency (Dery, Grant, & Wiblen, 2009; Wiblen, Grant, & Dery, 2010). The design and implementation of internally consistent policies, procedures, and practices can assist an HRIS to facilitate strategic value generation (Boateng, 2007).

Over the last five years (FY2010 to FY2015), the government of Bangladesh has made intensive efforts in order to present a sustainable platform for the state's transformation into a knowledge-based society through the sixth Five-Year Plan. The government of Bangladesh recently formulated the seventh Five-Year Plan to promote an information and communication technology (ICT)-based society for greater transparency, good governance, and improved public service delivery. One of the most common focuses of e-government is the utilization of ICT and developing and improving the core management of the republic along with ensuring more robust services to the people and, to some extent, heightening democracy and public involvement (Zaman & Rokonuzzaman, 2015).

The government of Bangladesh has taken on e-government initiatives, part of which have an integral focus on HRISs and which are carried out by a number of initiatives. For example, through the use of e-administration, all public service-related information is made available in Bangla (the local language) through electronic means and through mobile phones. In 2011, the government also established District e-Service Centers across all 64 districts to facilitate online data sharing and decision-making systems. The government has launched an online-based procurement system in phases. Electronic government procurement (e-GP) has been initiated. Both e-tendering and e-contract management have been assimilated through e-GP (Zaman & Rokonuzzaman, 2015). In spite of the significance of HRIS applications, developing countries like Bangladesh have understood, to some extent, the successful utilization and output of an HRIS.

Over 30 years, scholars have studied the process of the adaptation of new innovation. This research aims to understand the impacts of various perceived features of innovation on the human behavioral intention (BI) to utilize an HRIS and the results of HRIS usage. The building block of this research is a combination of Rogers' theory of adoption and information technology (IT) impact. The research includes noteworthy inferences for study of innovation. This study offers further evidence on the appropriateness of using Rogers' innovation attributes to gauge the different dimensions of attitudes toward and intentions to use an HRIS and of using Remenyi's and Zuboff's frameworks on IT to explore the results on the use of an HRIS. Rogers' theory of technology diffusion considered extent to use as the explanatory variable in explaining the adoption of an HRIS, whereas it was used as the dependent variable in analyzing the effect of an HRIS. The major theoretical contribution of this study is that it uses the BI to use an HRIS instead of the

extent of using an HRIS. In addition, this study's research model incorporates two additional outcomes with Remenyi's and Zuboff's IT frameworks, specifically, job satisfaction and turnover intention, which were proposed by Maier, Laumer, Eckhardt, and Weitzel (2013). Therefore, the theoretical contribution of this study is that the combined theoretical perspectives can better explain the impacts of different perceived features of an HRIS on the intention to utilize an HRIS and the influences on HR system usage.

The study also has several practical contributions. First, as reported in this study, IS can play a vital role for HR workers by increasing the value of their activities, which is relevant to the outcome of Ulrich (1998). Second, the study can also serve as guidance to HR professionals in the execution or implementation of new IT systems or processes. The organization can now offer a more suitable execution plan as it can take advantage of the features of innovation. Lastly, this study finds that the utilization of an HRIS does not have a significant impact on turnover intentions. However, it reveals that job satisfaction decreases with the use of an HRIS. Therefore, it can be concluded that there is no direct voluntary rotation based on the use of an HRIS. Although employee satisfaction may decline, employees will not leave the organization and will continue to gain experience with the new system.

The structure of this study is as follows. The next section explains the literature review, which is followed by a description of the research model as well as the hypotheses. Then, the research method process is described, followed by the findings. This section encompasses an assessment of the quality of measures, namely, the validity and reliability of the study of convergent and discriminant constructs. The succeeding sections are followed by discussion, implications, limitations, and conclusion.

2. Literature

HR with IT are two part-and-parcel functions that many organizations are learning to utilize as strategic weapons to stand against their competition (Jenkins & Lloyd, 1985). Again, to cope with modern changes, IT-based HR can lead HR management into the new era (Lin, 1997). An HRIS can be defined as a system that is used to acquire, store, manipulate, recover, and deliver pertinent information about the human resources of an organization (Thite, Kavanagh, & Johnson, 2012). Human resource departments, which exist in each and every organization, use such a system to facilitate transaction processes and continue organization control at the initial level. A well-functioning HR division is characterized by a greater likelihood of utilizing a well-functioning HRIS. To facilitate decision-making, both HR management and the first-line managers of an organization should be equipped such a system. The design and implementation of internally consistent policies, procedures, and practices can assist an HRIS in facilitating strategic value generation (Boateng, 2007).

The adoption and diffusion of technological innovation is one of the most widely studied phenomena across an expansive continuum of different disciplines, including marketing, social science, management, and engineering. Across a number of different disciplines, the circulation and utilization of state-of-the-art innovation has been the focus of research performed by eminent scholars. These studies were reviewed in order to analyze the flow of ideas, data, policies; practices and products and services existing in both the intra and inter cultures; and subcultures or market sections (Gann & Salter, 2000). Several studies have examined the extent to which strategic attention can be drawn by an HRIS within HR (Dery et al., 2009; Wiblen et al., 2010). Some studies have also confirmed that the acceptance of the HRIS and its utilization in management in the government sector depend on factors such as internal and external ambience, the organization, and the technological context (Troshani, Jerram, & Rao Hill, 2011).

HRIS-based systems have also produced substantial benefits in many developing countries. For example, in Malaysia, many small corporations have been already utilizing payroll services in their HR departments. Moreover, in modern education systems, online classes and video conferences

are widely and quickly becoming familiar in training departments (Temple, 2000). With the advent of IT utilization in modern corporations, practitioners and researchers are now taking into consideration the tremendous potential impact that IT may have on different functions within an organization, including HR (Gardner, Lepak, & Bartol, 2003). ICT can have positive impacts on communication with clients and on strategic planning. Malaquias and Hwang (2016) found that, in Brazil, smaller companies that implemented ICT-based systems had better communication with clients. As the application of IT increases in the HR management function, the likelihood of its having implications for HR professionals will also increase (Sparrow & Daniels, 1999).

However, several studies have reported negative aspects or challenges in adopting an HRIS. In a more recent study, Ishijima, Mapunda, Mndeme, Sukums, and Mlay (2015) identified several challenges for the effective adoption of an HRIS for healthcare in Tanzania. It has been reported that obtaining agreement on long-lasting HR information systems among stakeholders, setting a starting point for human resources with respect to health data, a shortage of computer expertise, and substandard settings for ICT are the major challenges for the effective establishment of HRISs for healthcare.

The theoretical underpinning of the study is structured on the theory of diffusion of innovation of Rogers (1983). Innovations are characterized according to compatibility (CP), relative benefit, difficulty, observability, and trialability, as in Rogers (1983). Empirical support in favor of CP, relative advantage (RA), and complexity (CX) has been provided by subsequent research (Tornatzky & Klein, 1982).

On the contrary, technological innovation is one of the famous frameworks in the IT literature on the effects of ICT, which involves three steps of utilization: automation, information, and transformation (Remenyi, Money, & Twite, 1993; Zuboff, 1988). Here, this study encompasses both theoretical perspectives (the degree of utilization and the usage impact of the HRIS) to determine the effect of numerous perceived features of innovations. Normalini, Kassim, Ramayah, and Kurnia (2012) conducted a study to assess several experiments and results of HRIS utilization in Malaysia. The results of the study showed that CP, relative benefit, difficulty, observability, and trialability are important prognosticators of the degree of utilization, and this degree of utilization is prominently connected to all five outcome variables, specifically, information responsiveness, information autonomy, external professional links, transformational activities, and IT support activities.

2.1. The antecedents of innovation

In the innovation diffusion theory of Rogers (1983), an individual's decision regarding the adoption of a certain innovation is affected by five key perceptions about the characteristics of the innovation: RA, CP, CX, visibility (VIS), and trialability. This study considers the first four perceptions given the scope of the study. A short description of each of the constructs is presented as follows:

2.1.1. Relative advantage

Rogers (2003) defines RA "as the degree to which an innovation is perceived to be superior to the idea it succeeds." It can also be observed as the degree to which an innovation is perceived to bring additional benefits to the user. Thus, it is often measured in terms of economic profitability, the enhancement of productivity, and other benefits. The nature of the innovation defines the specific type of RA that it can bring to the end user. The adoption of an innovation depends upon whether the expected benefits of the innovation match the demand of potential adopters. This particular attribute is referred to as perceived usefulness in the technology acceptance model (TAM) of Davis (1989). Generally speaking, the RA of an innovation, as perceived by a member of the system, is positively associated with its rate of adoption.

2.1.2. Compatibility

As defined by Rogers (2003), CP is the degree to which an innovation is perceived as reliable with the existing values, previous experiences, and needs of prospective adopters. An idea appears as

less uncertain to potential adopters if it is more compatible with the existing values and norms and, thus, CP is greater for an innovation than can be easily accepted by prospective adopters into part of their daily lives. The CP of an innovation is based on sociocultural values and beliefs, ideas introduced in the past, or the client's demand for the innovation.

2.1.3. Complexity

The extent to which an innovation is presumed not to be relatively easy to comprehend and utilize is defined as the level of CX of that particular innovation (Rogers, 2003). A new idea may be classified as either complex or simple according this view. This property is depicted as the perceived ease of utilization in the TAM model.

2.1.4. Visibility

Rogers (2003) defined VIS or observability as the extent to which the outcomes of an innovation are conspicuous to all. For some innovations, outcomes are difficult to observe, whereas the outputs of some ideas are not difficult to observe and communicate to others. According to Rogers (1962), the likelihood of adoption of an innovation has a positive association with the VIS of that innovation.

2.2. The impact of the innovation

The role of an HR professional is affected by the extensive use of IT through its effect on the information needs of these professionals. As argued by Remenyi et al. (1993) and Zuboff (1988), there are three phases of ICT use: automation, information, and transformation. In the first phase, IT or ICT mainly works toward automating manual systems and shrinking the demand for staff to perform daily tasks. IT often minimizes the amount of routine work and, thus, provides more scope for personnel to mull and utilize their full reasoning abilities. A brief discussion of the other phases are represented as follows:

2.2.1. Enable information responsiveness

An HRIS may enable HR professionals to augment their responsibilities to respond to their employees using the HRIS. This system enables them to be more attentive and responsible, respond more rapidly to queries, and use more authentic data (Gardner et al., 2003). Thus, with more intention to use an HRIS, HR workers have more capability to serve and increase their information responses.

2.2.2. Enable information autonomy

Increased intention to use an HRIS use may result increased autonomy for HR employees (Remenyi et al., 1993; Zuboff, 1988). HR staff will be able to be more autonomous in HR by paying more heed to employees.

2.2.3. Time required for transformation activities

By ensuring the utilization of an HRIS, HR professionals will save time. As a result, they may allot more time to other activities, and they can easily transmute recent tasks and pay attention to business activities and policies (Remenyi et al., 1993; Zuboff, 1988). To be specific, HR professionals can use more time for thinking about different issues in their organizations. At the same time, organizational change issues and strategy development issues can be more focused. HR staff will be able to invest more time to accomplish more transformational work.

2.2.4. Job satisfaction and turnover intention

Apart from above outcomes, HRIS adoption strongly influences those individuals who are engaged in the HR division in many other unanticipated ways. Based on empirical evidence from a large-scale strategic e-HRM implementation project at a global automotive supplier, Boudreau and Robey (2005) found that the implementation of an HRIS influences not only the job satisfaction of HR staff but also their turnover intentions. It is presumed that the greater the BI toward an HRIS, then, if these professionals have the greater job satisfaction as a result, their turnover intention rate would be lower and slower.

3. Research model & hypotheses development

The study aims to comprehend the impacts of different perceived features or attributes of innovations on the intention to utilize an HRIS and the results of HRIS utilization. Figure 1 depicts the research model, which is based on the innovation diffusion model of Rogers (1983), the IT framework model of Remenyi et al. (1993), the work of Zuboff (1988), and the work of Maier et al. (2013).

However, a critical question in this regard is how the link between RA, CP, CX, and VIS to BI to use can be explained via diffusion theory. The TAM (Davis, 1989) may be helpful in explaining the link. The TAM explains the link from perceived credibility, perceived usefulness, perceived ease of use, and technological self-efficacy to BI. The constructs of the Rogers (1983) innovation diffusion model are basically redefined versions of the respective constructs of the TAM. Thus, the links from the constructs of diffusion theory (RA, CP, CX, and VIS) to BI can be justified.

3.1. Hypotheses development

Any information system is presumed to provide advantages to users, as it allows them to perform both their personal and business tasks more effectively (Gan, 2003). Thus, it would be pertinent to assume that individuals who observe information systems as advantageous would also be likely to adopt such a system. Relative advantage is found to be an important factor in explaining the adoption of new innovations (Tornatzky & Klein, 1982). Previous studies (Adams, Nelson, & Todd, 1992; Oly Ndubisi & Jantan, 2003; Schaupp, Carter, & McBride, 2010; Van Slyke, Lou, Belanger, & Sridhar, 2010) have indicated that perceived usefulness/RA is positively associated with the use of an HRIS. Thus, the following hypothesis can be developed:

H1: Perceived relative advantage is positively related to intention to use an HRIS.

In the meta-analysis of innovation adoption advocated by Tornatzky and Klein (1982), it was reported that when an innovation is compatible with an individual's job responsibilities and value system, the probability of adopting that innovation is greater. Empirical studies found a positive relationship between CP and intention to use (Gan, 2003; Ojha, Sahu, & Gupta, 2009; Tornatzky & Klein, 1982). Thus, the second hypothesis can be given as:

H2: Perceived compatibility is positively related to intention to use an HRIS.

Previous research in this field found that an innovation that is complex in nature requires more technical skills and greater implementation efforts to increase its likelihood of adoption (Cooper & Zmud, 1990). It is expected that the lower the CX of using an HRIS, the more likely an individual is

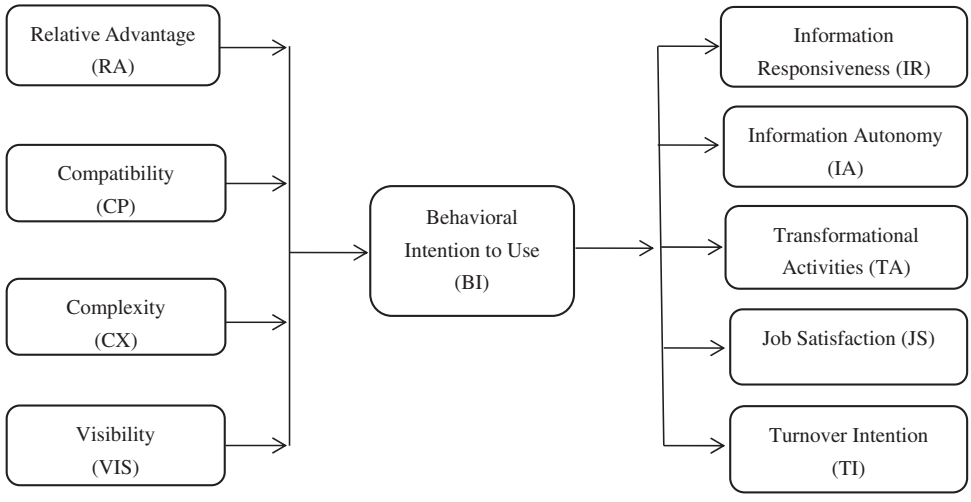

Figure 1. Research model.

to adopt it. Empirical evidence showed that perceived ease of use, which is the opposite of perceived CX, is significantly and positively associated with usage intention (Davis, Bagozzi, & Warshaw, 1989; Ojha et al., 2009; Ramayah, Dahlan, Teck, & Aafaqi, 2003; Venkatesh, 1999).This result leads to the next hypothesis:

H3: Perceived complexity is negatively related to intention to use an HRIS.

According to Gan (2003), the more visible to affiliates an innovation is perceived to be, the greater the likelihood of adopting that innovation. It is rational to expect that if an HRIS is more visible to individuals, it is more likely to be adopted. Studies have reported that the VIS/observability of an innovation is positively related to the intention to use an IS such as an HRIS (Gan, 2003; Karahanna, Straub, & Chervany, 1999; Venkatesh & Brown, 2001). Thus, the next hypothesis is:

H4: Perceived visibility is positively related to intention to use an HRIS.

According to Snell, Pedigo, and Krawlec (1995) and Zuboff (1988), the automation of HR activities may impact the roles of HR professionals by encompassing information-intensive functions. The use of IT might enable HR executives to answer queries from employees in a timely fashion, as it can help them to access more information. The use of IT may also enable HR professionals to increase their responsiveness to their HR-related activities (Gardner et al., 2003).Thus, it can be hypothesized that:

H5: The intention to use an HRIS enables increased information responsiveness by HR professionals.

Buchanan and McCalman (1988) argued that HR managers presume that IT can improve their confidence in decision-making by removing uncertainty from decisions. Employees' use of web-based applications may result in increased HR autonomy. Thus, it is hypothesized that:

H6: The intention to use an HRIS enables greater information autonomy for HR professionals.

As HR professionals use an HRIS more often, the likelihood of allotting time to other activities will increase, and they can transform their current activities and concentrate on business operations and practices (Lepak & Snell, 1998). Thus, it is hypothesized that:

H7: The intention to use an HRIS requires HR professionals to spend more time on transformational activities.

There are many reasons that explain how job satisfaction may change during HRIS implementation. For example, if authorities fail to make employees understand the main reasons for change, such that the employees have a misleading impression that the HRIS is being implemented to reduce costs rather than to facilitate work, then the implementing the HRIS may lead to dissatisfaction among employees (Stone & Lukaszewski, 2009). Furthermore, employee satisfaction may continue to decrease if the employees find the HRIS difficult to use (Beckers & Bsat, 2002). Moreover, an HRIS compels employees to change their work habits and adjust to a new system (Wiblen et al., 2010). Thus, the adoption of an HRIS may affect individual job satisfaction, and it can be hypothesized that:

H8: The more positive the intention to use an HRIS is, the lesser employee job satisfaction is.

HRIS implementation might appear to be a stressful event for employees. Eventually, it may cause employees to reconsider their situations at the workplace (Vandenberghe, Panaccio, Bentein, Mignonac, & Roussel, 2011), and it often has negative repercussions (Lukaszewski, Stone, & Stone-Romero, 2008). For example, after HRIS implementation, employees may be fired as a result

of the reduced demand for personnel involved with managing rather than administrative processes (Bondarouk, Ruel, & Van Der Heijden, 2009). Thus, it can be assumed that a positive intention to use an HRIS is negatively related to turnover intentions.

H9: The more positive an individual's attitude is toward the use of an HRIS, the lower that individual's turnover intention is.

4. Research methodology

The study population is comprised of HR executives and HR professionals who are involved in various organizations in and around Dhaka, Bangladesh. The purposive (non-probability) sampling technique is applied for this study. As is known, this type of sampling technique is applied whenever a researcher has a specific purpose for selecting specific respondents from study areas. The basic idea of non-probability sampling is to target respondents with particular characteristics, so that they will be able to cooperate with the pertinent study (Kothari, 2004). A matter of caution in this regard is that findings from this type of sampling may not lead to concrete decision-making.

Due to the dynamic nature of their jobs, the employees of these organizations are very much affiliated with IT innovations or equipment. HR professionals are the primary participants in this study. All potential respondents were emailed the soft version of the questionnaire. In total, 207 responses were received from the survey. To collect data in systematic manner, a structured questionnaire was developed. Specifically, the questionnaire was composed of a five-point Likert scale response format. Survey items were established after an extensive survey of the literature.

Both SPSS 22 and AMOS 22 were used to assess the model and to estimate the parameters in the outer and inner model. AMOS strives to optimize the variance of the dependent variables that can be explained. It also provides many benefits with regard to distribution requirements, type of variables, sample sizes, and the CX of the model to be tested.

5. Data analysis & findings

Table 1 depicts the demographic profile of the respondents. The representation of men and women followed the ratio of 87:13. The majority of the respondents had a tertiary education. Most were in the age group of between 35 and 40 years old. The income level of majority of the respondents ranged between Taka 50,000 and Taka 1,00,000 (US$1 = Taka 80).

5.1. Assessment of the measurement model

First, reliability was tested. Cronbach Alpha (α) and composite reliability (CR) were used to test the reliability. The Cronbach Alpha (α) ranged from 0.701 to 0.959 and CR values ranged from 0.702 to 0.958, which exceeded the recommended value of 0.7 (Hair, Black, Babin, & Anderson, 2010). Second, convergent validity was tested, which indicated the extent to which multiple items measuring the same concept were in agreement. As suggested by Hair et al. (2010), this study used factor loadings and the average variance extracted to assess convergent validity. The loading for each item exceeded the benchmark value of 0.5 (Hair et al., 2010), as is reported in Table 2. The average variances extracted by the latent construct were in the range of 0.571 and 0.804, which also exceeded the prescribed value of 0.5 (Hair et al., 2010).

5.2. Discriminant validity of constructs

Discriminant validity indicates the extent to which the measures are not a reflection of other variables and is reflected by low correlations between the measure of interest and the measures of other constructs (Cheung & Lee, 2010). Discriminant validity can be measured by comparing the squared correlations between constructs and the average variance extracted for a construct (Fornell & Larcker, 1981). As reported in Table 3, the squared correlations for each construct are less than the average variance extracted by the indicators, which is an indication that the constructs have adequate discriminant validity.

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Table 1. Demographic profile of respondents

Variable	Category	Frequency	%
Gender	Male	180	87
	Female	27	13
Education	Certificate/diploma	16	8
	Bachelor's degree	104	50
	Master's degree	75	36
	PhD	10	5
	Others	2	1
Age (in years)	Under 25	4	2
	26–30	8	4
	31–35	16	8
	35–40	85	41
	41–45	63	30
	46–50	21	10
	Above 50	10	5
Job Designation	Manager	123	59
	Executive	65	31
	Others	19	9
Level of Income	Under 50,000	34	16
	50,000–100,000	104	50
	1,00,001–150,000	44	21
	1,50,000–200,000	20	10
	More than 200,000	5	2
HRIS Implementation	Less than a year	94	45
	Between one and three years	85	41
	More than three years	21	10
	Others	7	3

Source: Author's estimation based on survey data.

5.3. Assessment of the structural model

To test the hypotheses, the structural model needs to be evaluated. As shown in Figure 2 and Table 4, eight of the nine hypotheses were supported. RA (β = 0.182, $p < 0.05$), CP (β = 0.426, $p < 0.05$), CX (β = −0.431, $p < 0.05$), and VIS (β = 0.398, $p < 0.05$) were all significantly related to the intention to use an HRIS. Thus, H1, H2, H3, and H4 were supported. The intention to use an HRIS was positively related to information responsiveness (β = 0.230, $p < 0.05$), information autonomy (β = 0.438, $p < 0.05$), transformational activities (β = 0.459, $p < 0.05$), and job security (β = −0.485, $p < 0.05$). These results give support to H5, H6, H7, and H8 of this study. However, the hypothesis of a negative relationship between the intention to use an HRIS and turnover intentions was refuted (b = −0.057, $p > 0.05$).

As reported in Table 5, all of the fit statistics indicate a good fit. The value of the key fit statistic (i.e., a Chi-square of 190.05 (p = 0.01)) demonstrates that the model has a decent overall goodness of fit. In addition, the model has a Goodness-of-Fit Index (GFI) of 0.92, a (Normal Fit Index) NFI of 0.95, a (Confirmatory Fit Index) CFI of 0.91, and a (Root Mean Square Error of Approximation) RMSEA of 0.03.

6. Discussion

The study hypothesized that the intention to use an HRIS was positively influenced by RA. The findings of the study supported this hypothesis. This finding is consistent (Choi, Choi, Kim, & Yu,

Table 2. Results of measurement models

Construct	Code	Loadings	α	CR	AVE
Relative Advantage (RA)	RA1	0.872	0.959	0.958	0.804
	RA2	0.899			
	RA3	0.862			
	RA4	0.855			
	RA5	0.884			
	RA6	0.893			
	RA7	0.871			
Compatibility (CP)	CP1	0.763	0.840	0.838	0.669
	CP2	0.765			
	CP3	0.824			
Complexity (CX)	CX1	0.820	0.915	0.902	0.722
	CX2	0.864			
	CX3	0.799			
	CX4	0.845			
	CX5	0.790			
Visibility (VIS)	VIS1	0.751	0.832	0.832	0.669
	VIS2	0.796			
	VIS3	0.797			
Information Responsiveness (IR)	IR1	0.759	0.809	0.897	0.703
	IR2	0.862			
Information Autonomy (IA)	IA1	0.787	0.873	0.857	0.683
	IA2	0.751			
	IA3	0.775			
	IA4	0.782			
Transformational Activities (TA)	TA1	0.809	0.859	0.837	0.650
	TA2	0.698			
	TA3	0.741			
Job Satisfaction (JS)	JS2	0.751	0.708	0.702	0.571
	JS3	0.704			
Turnover Intention (TI)	TI1	0.746	0.701	0.926	0.695
	TI2	0.824			
Behavioral Intention to Use (BI)	BI1	0.814	0.729	0.705	0.563
	BI2	0.742			
	BI3	0.576			

Note: CR indicates composite reliability; α is Cronbach's alpha; AVE denotes the average variance extracted; and JS1 and TI3 were deleted due to low loadings.
Source: Author's estimation based on survey data.

2003; Gan, 2003; Sang, Lee, & Lee, 2010; Schaupp et al., 2010; Tan & Teo, 2000; Van Slyke et al., 2010) with studies that have found RA to be a very crucial factor.

Compatibility was also assumed to be positively related to the intention to use an HRIS. The findings of this study were congruent with this hypothesis. It can be expected that a system that is well-matched to a person's daily life will lead to a high level of eagerness to utilize that system. This outcome goes along with the findings of Gan (2003), Ojha et al. (2009), Tan and Teo (2000), Tornatzky and Klein (1982), Van Slyke et al. (2010), who explained that CP is a very vital factor in the decision to utilize an innovation.

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Table 3. Discriminant validity of constructs

Constructs	1	2	3	4	5	6	7	8	9	10
RA	0.709									
CP	0.558	0.628								
CX	0.509	0.534	0.515							
VIS	0.413	0.465	0.494	0.574						
IR	0.430	0.515	0.484	0.542	0.669					
IA	0.560	0.595	0.479	0.104	0.100	0.559				
TA	0.181	0.175	0.117	0.107	0.494	0.511	0.526			
JS	0.339	0.198	0.188	0.161	0.598	0.301	0.348	0.516		
TI	0.446	0.608	0.502	0.565	0.661	0.484	0.491	0.505	0.506	
BI	0.339	0.181	0.186	0.158	0.453	0.192	0.211	0.235	0.303	0.356

Source: Author's estimation based on survey data.

This study hypothesized that CX is negatively related to the intention to utilize an HRIS. The analysis found parallel findings that support this hypothesis. The underlying reason behind this result is that an HRIS will not be used if it is deemed to be very complex to use. This observation provides similar results to those of many exiting studies (Davis et al., 1989; Ojha et al., 2009; Ramayah & Ignatius, 2005; Venkatesh, 1999) that have consistently found CX (ease of use in the TAM) to be a factor influencing the intention to use an innovation.

Visibility is hypothesized to be positively related to the intention to use an HRIS. This analysis found evidence in favor of this hypothesis. The reason behind this finding is that the likelihood of developing a positive impression of a system is greater for respondents who have used the system themselves than for those who have not used the HRIS. This finding is consistent with those of previous studies (Gan, 2003; Karahanna et al., 1999; Venkatesh & Brown, 2001) that found VIS to be a major predictor of technology usage.

The hypotheses that the intention to utilize an HRIS enables increased information responsiveness and information autonomy by HR professionals were also supported. The results are similar to those of Zuboff (1988) and Remenyi et al. (1993), who assumed that HR activities became more

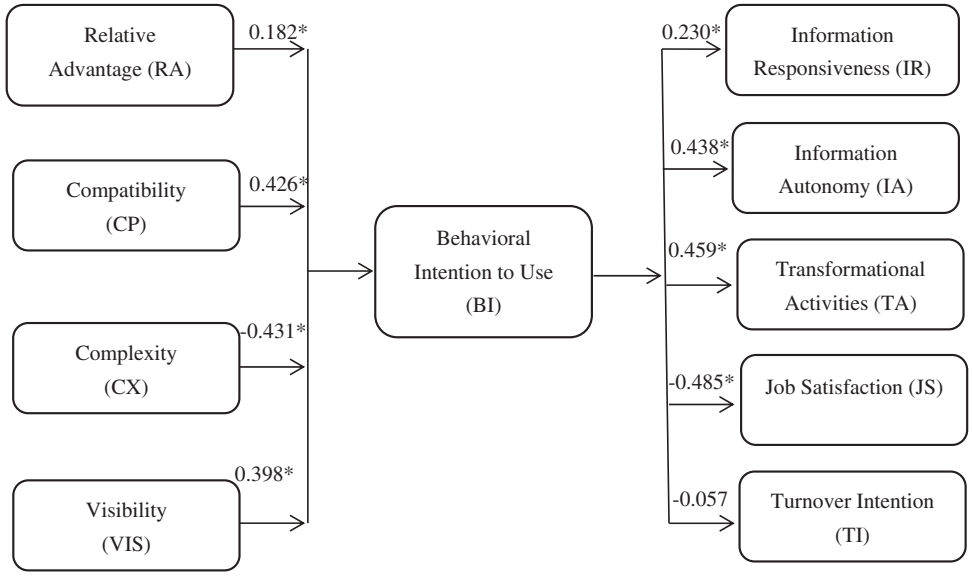

Figure 2. Structural model.

Note: * denotes that a correlation is significant at the 5% levels of significance.

Table 4. Path coefficients and hypothesis testing

Hypothesis	Path	Standardized Coefficients	*t*-statistics	Decision
H1	RA→ BI	0.182	2.648*	Supported
H2	CP→ BI	0.426	6.747*	Supported
H3	CX→ BI	−0.431	−6.835*	Supported
H4	VIS→ BI	0.398	6.211*	Supported
H5	BI→ IR	0.230	3.390*	Supported
H6	BI→ IA	0.438	6.970*	Supported
H7	BI→ TA	0.459	7.391*	Supported
H8	BI→ JS	−0.485	−7.941*	Supported
H9	BI→ TI	−0.057	−0.811	Not Supported

Note: * denotes that a correlation is significant at the 5% levels of significance.

Table 5. Fit indices of the hypothesized model

Fit statistic	Suggested	Obtained
Chi-square		190.05
Chi-square significance	$p<$ or = 0.05	0.01
GFI	>0.90	0.92
NFI	>0.90	0.95
CFI	>0.90	0.91
RMSEA	<0.05	0.03

Source: Author's estimation based on survey data.

computerized, which eventually made HR officials more competent through their activities and responsibilities.

The hypothesis stating that the intention to utilize an HRIS allows HR officials to spend more time on transformational activities was also supported. An HR professional's shift of focus to transformational activities suggests that the utilization of IT allowed HR people to turn more attention to knowledge-based activities. This result is relevant to the research of Gardner et al. (2003).

This study also hypothesized that the intention to use an HRIS lesser job satisfaction and reduces turnover intentions. We found that there is a significant negative relationship between HRIS usage and job satisfaction. This outcome is relevant to the findings of Stone and Lukaszewski (2009) and Beckers and Bsat (2002). However, the hypothesis that the intention to use an HRIS decreases turnover intentions was not supported by the findings. This result has been reported by previous research (Laumer, Maier, Weitzel, & Eckhardt, 2012) that shows that employees quit their jobs after the implementation of an HRIS when they feel vulnerable due to the initiation of a new information system. The findings of previous studies regarding turnover intention are not supported by this study. As is evident from Table 1, most of the institutions (45%) have used an HRIS for less than one year. This observation might explain the lack of a significant link between turnover intention and the intention to use an HRIS.

7. Limitations & future research direction

One of the limitations of this study is that it has not examined the direct relationship between job satisfaction and turnover intentions. If so, it would explain whether there exists a significant correlation between turnover intentions and HRIS use. Future research may look into the mediating effect on turnover intentions due to job satisfaction. Moreover, the generalizability of the

findings from this study is limited, as the empirical data come from the introduction of an HRIS in a few organizations with HR professionals. To be specific, the cultural backgrounds of employees at companies in other countries could lead to different dimensions in HRIS usage. This issue needs to be investigated in future research. In addition to the limitations mentioned above, there is also a limitation associated with the number of data points collected. In this study, all of the empirical data were collected at one time during the implementation of the system. Henceforth, there is no information on employee job satisfaction and turnover intentions before the use of the HRIS. Therefore, a substantive position on the relationship between HRIS use and job satisfaction cannot be taken.

8. Conclusion

This study investigated the intention to use an HRIS and the effects of HRIS adoption. It has shown that the BI to use an HRIS is influenced by perceived innovation characteristics. These characteristics influence the results derived from the usage of these systems by HR professionals. The study found evidence that is consistent with the theorized impact suggesting that HR professionals have more proficiency with regard to their awareness, responsibility, and self-assessment for the usage of IT. Moreover, some new insights resulting from this study have come out with regard to the relationship between personal interests and purpose for using an HRIS in Bangladesh. The study suggests that perceived innovation characteristics, which measure individual attitudes, are fair and that they affect the eagerness to use an HRIS. To put it differently, the results suggest that IT can facilitate an insightful reshaping and restructuring of the nature of professionalism and jobs. The study also finds evidence in favor of potential transformational impact of HRIS use, as predicted by Zuboff's theory. Therefore, the findings propounded from this research have both theoretical and practical implications.

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References

Adams, D. A., Nelson, R. R., & Todd, P. A. (1992). Perceived usefulness, ease of use, and usage of information technology: A replication. *MIS Quarterly*, *16*, 227–247. doi:10.2307/249577

Beckers, A. M., & Bsat, M. Z. (2002). A DSS classification model for research in human resource information systems. *Information Systems Management*, *19*(3), 41–50.

Boateng, A. (2007). *The role of human resource information systems (HRIS) in strategic human resource management (SHRM)* (Master of science theses), Accounting swedish school of economics and business administration, palovartijantie.

Bondarouk, T., Ruel, H., & Van Der Heijden, B. (2009). E-HRM effectiveness in a public sector organization: A multi-stakeholder perspective. *The International Journal of Human Resource Management*, *20*(3), 578–590. doi:10.1080/09585190802707359

Boudreau, M.-C., & Robey, D. (2005). Enacting integrated information technology: A human agency perspective. *Organization Science*, *16*(1), 3–18. doi:10.1287/orsc.1040.0103

Buchanan, D. A., & McCalman, J. (1988). Confidence, visibility and pressure: The effects of shared information in computer aided hotel management. *New Technology, Work and Employment*, *3*(1), 38–46. doi:10.1111/ntwe.1988.3.issue-1

Cheung, C. M., & Lee, M. K. (2010). A theoretical model of intentional social action in online social networks. *Decision Support Systems*, *49*(1), 24–30. doi:10.1016/j.dss.2009.12.006

Choi, H., Choi, M., Kim, J., & Yu, H. (2003). An empirical study on the adoption of information appliances with a focus on interactive TV. *Telematics and Informatics*, *20*(2), 161–183. doi:10.1016/S0736-5853(02)00024-2

Cooper, R. B., & Zmud, R. W. (1990). Information technology implementation research: A technological diffusion approach. *Management Science*, *36*(2), 123–139. doi:10.1287/mnsc.36.2.123

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, *13*, 319–340. doi:10.2307/249008

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison

of two theoretical models. *Management Science*, *35* (8), 982–1003. doi:10.1287/mnsc.35.8.982

Dery, K., Grant, D., & Wiblen, S. (2009). Human resource information systems (HRIS): Replacing or enhancing HRM. *Proceedings of the 15th World Congress of the International Industrial Relations Association IIRA*.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, *18*, 39–50. doi:10.2307/3151312

Gan, E. (2003). Factors influencing adoption of technology: Case study on personal digital assistant. *MBA thesis*, School of Management, Universiti Sains Malaysia, Gelugor.

Gann, D. M., & Salter, A. J. (2000). Innovation in project-based, service-enhanced firms: The construction of complex products and systems. *Research Policy*, *29* (7–8), 955–972. doi:10.1016/S0048-7333(00)00114-1

Gardner, S. D., Lepak, D. P., & Bartol, K. M. (2003). Virtual HR: The impact of information technology on the human resource professional. *Journal of Vocational Behavior*, *63*(2), 159–179. doi:10.1016/S0001-8791(03)00039-3

Hair, J., Black, W., Babin, B., & Anderson, R. (2010). *Advanced diagnostics for multiple regression: A supplement to multivariate data analysis: Upper Saddle River*. NJ: Prentice Hall.

Ishijima, H., Mapunda, M., Mndeme, M., Sukums, F., & Mlay, V. S. (2015). Challenges and opportunities for effective adoption of HRH information systems in developing countries: National rollout of HRHIS and TIIS in Tanzania. *Human Resources for Health*, *13*(1), 48. doi:10.1186/s12960-015-0043-1

Jenkins, M. L., & Lloyd, G. (1985). How corporate philosophy and strategy shape the use of HR information systems. *Personnel*, *62*(5), 28–38.

Karahanna, E., Straub, D. W., & Chervany, N. L. (1999). Information technology adoption across time: A cross-sectional comparison of pre-adoption and post-adoption beliefs. *MIS Quarterly*, *23*, 183–213. doi:10.2307/249751

Kassim, N. M., Ramayah, T., & Kurnia, S. (2012). Antecedents and outcomes of human resource information system (HRIS) use. *International Journal of Productivity and Performance Management*, *61*(6), 603–623. doi:10.1108/17410401211249184

Kothari, C. R. (2004). Research methodology: Methods and techniques. In *New age international*.

Laumer, S., Maier, C., Weitzel, T., & Eckhardt, A. (2012). The implementation of large-scale information systems in small and medium-sized enterprises—a case study of work- and health-related consequences. *2012 45th Hawaii International Conference on Information Systems*.

Lepak, D. P., & Snell, S. A. (1998). Virtual HR: Strategic human resource management in the 21st century. *Human Resource Management Review*, *8*(3), 215–234. doi:10.1016/S1053-4822(98)90003-1

Lin, C.-Y.-Y. (1997). Human resource information systems: Implementation in Taiwan. *Research and Practice in Human Resource Management*, *5*(1), 57–72.

Lukaszewski, K. M., Stone, D. L., & Stone-Romero, E. F. (2008). The effects of the ability to choose the type of human resources system on perceptions of invasion of privacy and system satisfaction. *Journal of Business and Psychology*, *23*(3–4), 73–86. doi:10.1007/s10869-008-9074-0

Maier, C., Laumer, S., Eckhardt, A., & Weitzel, T. (2013). Analyzing the impact of HRIS implementations on HR personnel's job satisfaction and turnover intention. *The Journal of Strategic Information Systems*, *22*(3), 193–207. doi:10.1016/j.jsis.2012.09.001

Malaquias, R. F., & Hwang, Y. (2016). Firms' size and use of information and communication technologies: Empirical evidence on small businesses in Brazil. *Information Development*, *32*(5), 1613–1620. doi:10.1177/0266666915616165

Ojha, A., Sahu, G., & Gupta, M. (2009). Antecedents of paperless income tax filing by young professionals in India: An exploratory study. *Transforming Government: People, Process and Policy*, *3*(1), 65–90. doi:10.1108/17506160910940740

Oly Ndubisi, N., & Jantan, M. (2003). Evaluating IS usage in Malaysian small and medium-sized firms using the technology acceptance model. *Logistics Information Management*, *16*(6), 440–450. doi:10.1108/09576050310503411

Park, H. J., Gardner, T. M., & Wright, P. M. (2004). HR practices or HR capabilities: Which matters? Insights from the Asia Pacific region. *Asia Pacific Journal of Human Resources*, *42*(3), 260–273. doi:10.1177/1038411104045394

Ramayah, T., Dahlan, N., Teck, T. K., & Aafaqi, B. (2003). Perceived web security and web-based online transaction intent. *Multimedia Cyberscape Journal*, *1*, 131–141.

Ramayah, T., & Ignatius, J. (2005). Impact of perceived usefulness, perceived ease of use and perceived enjoyment on intention to shop online. *ICFAI Journal of Systems Management (IJSM)*, *3*(3), 36–51.

Remenyi, D., Money, A., & Twite, A. (1993). *A guide to measuring and managing IT benefits*. Oxford: NCC Blackwell Ltd.

Rogers, E. M. (1962). *Diffusion of innovativeness*. NY: The Free Press of Glencoe.

Rogers, E. M. (1983). *Diflitsion of innovations*. New York: Free.

Rogers, E. M. (2003). *Diffusion of innovations* (edn). New York: Free Press.

Sang, S., Lee, J.-D., & Lee, J. (2010). E-government adoption in Cambodia: A partial least squares approach. *Transforming Government: People, Process and Policy*, *4*(2), 138–157. doi:10.1108/17506161011047370

Schaupp, L. C., Carter, L., & McBride, M. E. (2010). E-file adoption: A study of US taxpayers' intentions. *Computers in Human Behavior*, *26*(4), 636–644. doi:10.1016/j.chb.2009.12.017

Snell, S., Pedigo, P., & Krawlec, G. (1995). Managing the impact of information technology on human resource management. In G. Ferris, S. Rosen, & D. Barnum (Eds), *Handbook of human resource management*. Oxford: Blackwell.

Sparrow, P. R., & Daniels, K. (1999). Human resource management and the virtual organization: Mapping the future research issues. *Journal of Organizational Behavior*, *6*, 45.

Stone, D. L., & Lukaszewski, K. M. (2009). An expanded model of the factors affecting the acceptance and effectiveness of electronic human resource management systems. *Human Resource Management Review*, *19*(2), 134–143. doi:10.1016/j.hrmr.2008.11.003

Tan, M., & Teo, T. S. (2000). Factors influencing the adoption of Internet banking. *Journal of the AIS*, *1* (1es), 5.

Temple, P. (2000, May). Technology on the fly. *Workforce*, Vol. 10.

Thite, M., Kavanagh, M. J., & Johnson, R. D. (2012). *Evolution of human resource management and human resource information systems* (pp. 2–35). Sage Publications.

Tornatzky, L. G., & Klein, K. J. (1982). Innovation characteristics and innovation adoption-implementation: A

meta-analysis of findings. *IEEE Transactions on Engineering Management*, *1*, 28–45. doi:10.1109/TEM.1982.6447463

Troshani, I., Jerram, C., & Rao Hill, S. (2011). Exploring the public sector adoption of HRIS. *Industrial Management & Data Systems*, *111*(3), 470–488. doi:10.1108/02635571111118314

Ulrich, D. (1998). A new mandate for human resources. *Harvard Business Review*, *76*, 124–135.

Van Slyke, C., Lou, H., Belanger, F., & Sridhar, V. (2010). The influence of culture on consumer-oriented electronic commerce adoption. *Journal of Electronic Commerce Research*, *11*(1), 30.

Vandenberghe, C., Panaccio, A., Bentein, K., Mignonac, K., & Roussel, P. (2011). Assessing longitudinal change of and dynamic relationships among role stressors, job attitudes, turnover intention, and well-being in neophyte newcomers. *Journal of Organizational Behavior*, *32*(4), 652–671. doi:10.1002/job.v32.4

Venkatesh, V. (1999). Creation of favorable user perceptions: Exploring the role of intrinsic motivation. *MIS Quarterly*, *23*, 239–260. doi:10.2307/249753

Venkatesh, V., & Brown, S. A. (2001). A longitudinal investigation of personal computers in homes: Adoption determinants and emerging challenges. *MIS Quarterly*, *25*, 71–102. doi:10.2307/3250959

Wiblen, S., Grant, D., & Dery, K. (2010). Transitioning to a new HRIS: The reshaping of human resources and information technology talent. *Journal of Electronic Commerce Research*, *11*(4), 251.

Zaman, H., & Rokonuzzaman. (2015). Achieving digital Bangladesh by 2021 and beyond. *Background paper for the 7th Five Year Plan (7FYP)*.

Zuboff, S. (1988). *In the age of the smart machine: The future of work and power*. Basic books.

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