The Extent of Adoption of HRIS: An Empirical Investigation with Mediators & Moderators

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Abstract

Existing literature on the HRIS acceptance is exploratory with little emphasis on rigorous theoretical development. In the current study, we bring together disparate threads of HRIS research and employ the innovation diffusion model and the TAM model to explicate the extent of adoption of HRIS among Indian firms. The findings of empirical research show that OHR, FHR and SHR contribute to the performance of HR systems which further drives the extent of adoption within the organization. Further, the variable 'performance consideration' acts as a mediator and the variation in organizational size and work experience do not lead to drastic changes in extent of adoption. These results suggest that the impact of HRIS functions does not vary with the intensity of organization size, work experience and technology facilitation. Lastly, the study demonstrates the progressive emergence of strategic HR function within HRIS which is a major deviation from previous works.

Keywords

Adoption, Extent, HRIS, Human Resources, Information Systems, Sobel Test, TAM, Tech Facilitation

Introduction

Information Technology (IT) has brought about a fundamental change in the way organizations work and this includes the human resource (HR) departments as well. Although IT has been applied to HR related functions since long (beginning 1960's) (Ball 2001, Martinsons 1994) but it is only recently that the impact of IT on HR functions and HR professionals has started to gain recognition among the scholars and practitioners ((Zhang and Wang 2006). This interaction of IT with HR has been captured within the broader realms of Human Resource Information Systems (HRIS). According to Tannenbaum (1990), HRIS is used to store, acquire, modify, analyze, retrieve, and disseminate information about an organization's human resource. HRIS includes all hardware, software and associated personnel that help in managing HR related information (Broderick and Boudreau 1992).

Initial developments in HRIS included modules like the ubiquitous payroll processing, attendance tracking and transactional processing systems which not only automated laborious manual tasks but also could help with management controls. These rudimentary applications have been referred to as unsophisticated HR by Martinsons (1994). Over the years HR activities have been transformed from transaction oriented capabilities to the strategic HR with an emphasis on information intensive decisions (Al-Damour and Al-Zu bi 2014); the nature of HRIS too underwent a significant change and these new

functions were classified as either administrative HR or analytical HR (Ball 2001, Teo, Lim and Fedric 2001, Tripathi 2011). HRIS offers improved information responsiveness, information autonomy, and real-time access to a variety of information (Kassim, Ramayah and Kurnia 2012).

Over the last decade or so, rapid business growth has resulted in an increased adoption of Enterprise Applications among organizations in India. In earlier phases, the demand for automation was mainly for critical business functions such as operations, finances, inventory, logistics etc. Since these functions have had a direct impact on the bottom-line, they were always given a priority with respect to the people management functions. However, with new prospects, organizations were scaling up and so were the people management challenges. The Human Resource (HR) function was experiencing some fast changes, in reaction to the challenges posed by this rapid technological growth. To cope up with these challenges Indian organizations have had to involve the use of, information technology in the conventional HR practices (Simon and Werner 1996), i.e. nothing but HRIS. Compared to multinational organizations, Indian organizations are yet to transform their diverse workforce into well-trained, motivated and efficient employees. Further, they stand to face retaining and multi-skilling problems, dealing with aggressive workforce reduction policies, and lack of meaningful career development policies (Venkat Ratnam 1998). Consequently, HRIS shall play a pivotal role and this forms our primary motivation for this work. The current research examines the main factors that seem to impact the acceptance and prolonged use of HRIS applications among private organizations in India.

Another motivation is that majority of organizations in India are still concerned about the efficiency and productivity of the employees, hence the use of HRIS is limited to transactional and transformational features. However, in developed economies, the management's prime focus is more strategic. The intent is to improve the quality of working life, total quality management and worker's participation in management, creating an employer brand, talent management strategy etc. Hence through the current study we intent to explore the magnitude of this gap, and try to answer how far Indian private organizations have reached in terms of HRIS adoption.

To the best of our knowledge it is one of the few endeavors to research the extent of adoption of various HR activities empirically. In that respect this study attempts to make an important theoretical contribution towards articulating the mediating role of performance consideration between HR activities and extent of adoption. Moreover, it offers several touch points for the decision makers that will help them to identify relevant HR activities and promote their use strategically among the workforce. This study will expand the scope of the literature by examining the extent of HRIS adoption in Indian private organizations.

The paper is structured in the following manner. The study begins with a literature review on HRIS, identifies existing gaps and specifies research questions. This is followed by the conceptual development and the research framework. Subsequently, in the next section we present research methodology, measures, and data analysis along with the results. The concluding section deals with findings, discussion, limitations, and avenues for future research.

Literature Review

At broader level, the extant literature is classified into two primary themes; design of HRIS & ways of effective utilization of HRIS or actual usage of HRIS among different organizations, (Kovach and Cathhart Jr 1999), and factors impacting the adoption of HRIS (including work on benefits of adoption) (Kassim, Ramayah and Kurnia 2012, Al-Damour and Al-Zu bi 2014). A majority of scholars have recognized that the benefits like accuracy and timeliness of the information (Lederer 1984, Wille and Hammond 1981), shift to strategic HRM, improved competitiveness in HR operations, flexibility in producing myriad reports, improved employee engagement and communication, lower cost and facilitation of strategic value generation through transparent and consistent HR policy implementation etc. (Beckers and Basat 2002, Dery, Grant and Wiblen 2009, Wiblen, Grant and Dery 2010) are well experienced in the industry. Factors like lack of management support, lack of IT knowledge & infrastructure, and lack of monetary support (Ngai and Wat 2006) seem to act as the barriers to HRIS implementation and adoption among organizations.

Among noteworthy empirical works, the research by Ball (2001) and Thaler-Carter (1998) needs attention wherein the *organization size* is found to be a strong determinant for both HRIS adoption as well as the extent of usage for various administrative and analytical activities. Predominantly in initial stages, unsophisticated HR (Martinsons 1994) has been used among small sized organizations. Martinsons (1994) along with (Kinnie and Arthurs 1996) have also emphasized on studying other subtle factors such as departmental structure, culture, existing knowledge and skills. Hussain et al, (2007) present a contradicting viewpoint mentioning that the *organizational size* is not the primary determinant but flexibility, low cost and better utility is what determines uptake of HRIS in an organization. The variable, size of the organization and its relationship to HRIS remains a grey area.

Most of the studies on HRIS have been conducted in developed western countries with a different socio-economic and cultural context as compared to developing countries with few exceptions (Kassim, Ramayah and Kurnia 2012). Very little work on any aspect of HRIS has emerged from economies like India and other South-East Asian counties. A recent scholarly work from emerging economy of Pakistan (Saleem 2012) and case study analysis of HRIS implementation from an Indian large manufacturing organization (Mohanty and Tripathy 2009), although insightful but do little to extend or to connect conceptually to the existing theory.

Existing literature on HRIS has been scattered; from a methodological point of view, most of the existing work have been exploratory in nature and has not taken a rigorous theoretical or empirical approach towards furthering the subject. HR processes have been known to be highly contextual and culture specific (Kinnie and Arthurs 1996). Therefore, additional studies in cultural setting of developing countries in Asia are needed. Moreover, none of the contemporary works from India takes a rigorous empirical approach towards understanding the adoption of HR systems. HR professionals have been using HR systems for more than two decades in India; however we could not witness any research which has captured perceptions & experiences of actual users, especially the extent of adoption. Based on the above identified gaps within existing work, primary research question that we intend to answer are:

1. What are the organizational and individual outcomes experienced by users of HRIS? Are these outcomes primary drivers of adoption of HRIS?
2. How can we conceptualize the extent of adoption? What is the extent of adoption of HRIS in the organizations? And
3. How does the organizational size impact the adoption of HRIS?

The current research aims to contribute towards better theoretical understanding of extent of HRIS adoption through concrete empirical analysis.

Conceptual Development

In order to establish the theoretical framework for this paper we analyzed several theories from innovation diffusion and technology acceptance within IS literature.

Innovation diffusion: Diffusion is a process by which an innovation spreads across a population of potential adopters over time (Rogers 1995). However not all innovations diffuse at the same rate and even so, there is a gap in terms of initial adoption and subsequent usage as seen in the organizations. This gap has been named as "assimilation gap" (Fichman and Kemerer, The illusory diffusion of innovation: An examination of assimilation gaps 1999) which is defined as the difference between cumulative adoption and cumulative deployment after initial acquisition. Other scholars too have pointed out instances of either under-utilization or de-installation (Eveland and Tornatzky 1990) of recently installed technologies. Primary reasons cited have been lack of appropriate increasing returns to adoption and presence of knowledge barriers (Fichman and Kemerer, The illusory diffusion of innovation: An examination of assimilation gaps 1999). Lack of appropriate absorptive capacity (Cohen and Levinthal 1990), lack of effort in organizational learning (Kogut and Zander 1992) are other cited reasons apart from the more political or monetary reasons (Tornatzky and Klein 1982, Premkumar, Ramamurthy and Nilakanta 1994). Although the above scholarly works set the tone but they do not address the micro issue of studying the extent of adoption of an innovation. Moreover, innovation diffusion literature appears to

be concerned about the diffusion in numbers rather than the diffusion in terms of actual usage, acceptance and assimilation within the organization. Little empirical work is available on "post adoptive behavior" (Jasperson, Carter and Zmud 2005) although conceptualization of post adoption activities has been included.

Thong (1999) has talked about the extent of adoption among small firms but the operationalization of extent has been in terms of number of system and software applications adopted across the organization. Similarly, the definition of extent of HRIS use is missing in most recent ones (Kassim, Ramayah and Kurnia 2012), where the study considers HRIS as an innovation and intend to examine the impact of HRIS on the extent of its use. An important conceptual work by Fichman (2001) talks about the measures of organizational innovation, with various dimensions such as internal diffusion (R. W. Zmud 1982, Bretschneider and Wittmer 1993, Hart and Saunders 1998), infusion (Cooper and Zmud 1990, Zmud and Apple 1992, Rai and Howard 1994), routinization (Yin 1979), and assimilation (Meyer and Goes 1988, Fichman and Kremer 1997, Armstrong and Sambamurthy 1999). Jasperson et al., (2005) defined post adoptive behavior as a combination of feature adoption decisions, feature use behavior, and feature extension behavior made by an individual after an IT application has been installed and successfully utilized. Based on the scholarly evidences, for the current study, the variable **extent of adoption** is conceptualized as the pervasiveness of HRIS within the organization (internal diffusion); level of utilization and user-centric modification of given features of HRIS (infusion); routinization in daily usage across the organization and assimilation within organizational processes wherein institution cannot function smoothly or faces roadblocks in the event of absence or improper functioning of implemented HRIS applications.

Technology acceptance and adoption: Some of the major milestones in theoretical developments aiding our understanding of technology acceptance are the theory of reasoned action (TRA) (Sheppard, Hartwick and Warshaw 1988, Davis, Bagozzi and Warshaw 1989), technology acceptance model (TAM) (Venkatesh, Morris, et al. 2003), motivational model Davis et al. (1992), theory of planned behavior (TPB) (Ajzen 1991, Mathieson 1991, Taylor and Todd 1995a, Harrison, Mykytyn and Riemenschneider 1997), combined TAM and TPB, and unified theory of acceptance and use of technology (UTAUT) Venkatesh et al. (2003). Although the focus of most mentioned theories happens to be immediate adoption as opposed to our long term adoption but above works build the foundation for adoption in general and we expect it to enrich our understanding for further extension in theoretical framework. We would very briefly bring out relevant aspects of these theories which would help us in developing and explaining our research framework.

The existing work has called for more detailed work linking organizational and individual outcomes to acceptance as well as contextual refining of UTAUT constructs with higher content validity (Venkatesh, Morris, et al. 2003). Last but not the least; UTAUT serves to identify intention to adopt and thereby predict user behavior but it does not tell how well or how deeply a technology has been adopted. It does not offer a way of looking at the extent of adoption by looking at the user behavior and characteristics among the accepting community. We adopted the rich UTAUT platform for extending our existing understanding about the level of acceptance or the extent of adoption of a system in an organizational setting.

HRIS is a function specific (HR department), and user group specific organizational technology. However, there is a possibility that in many organizations it is still not driven by the technology (or minimal technology used). Hence, the acceptance and extent of adoption of HRIS provides us a fertile ground to confirm our understanding on technology acceptance. Next, we intend to map the organizational and individual outcomes of HRIS to standard UTAUT constructs for refinement and make them contextual.

Performance expectancy (UTAUT): The strongest predictor of intention to use is performance expectancy or perceived usefulness (Davis et al. 1989, 1992) across various models. The construct performance expectancy incorporates sub-constructs like usefulness & extrinsic motivation (Davis, Bagozzi and Warshaw 1989, Davis, Bagozzi and Warshaw 1992), job-fit of the system to the task in question (Thompson, Higgins and Howell 1991), relative advantage accrued by using a new system (Moore and Benbasat 1991) and outcome expectations both personal & professional (Compeau and Higgins 1991, Compeau, Higgins and Huff 1999). In the context of our study, various HR activities are

categorized as operational HR systems (OHR) (Converse and Presser 1986, Eveland and Tornatzky 1990, Teo, Lim and Fedric 2001, Tripathi 2011, Saleem 2012), functional HR systems (FHR) (Ball 2001, Absar and Mahmood 2011, Chen, et al. 2011, Saleem 2012) and strategic HR systems (SHR) (Boateng 2007, Hussain, Wallace and Cornelius 2007, Absar and Mahmood 2011, Hutchings, De-Cieri and Shea 2011, Saleem 2012).

The automation of various HR activities (OHR, FHR and SHR) would help organizations to achieve (a) faster information processing, (b) greater information accuracy, (c) improved planning and program development, and (d) enhanced employee communications (Haines and Petit 1997). In other words HRIS contributes to improve the overall performance of the organization. We capture this variable as ***performance consideration*** (PC) in place of performance expectancy as we intend to capture long term acceptance among the users. PC does not simply reflect a change in nomenclature but it intends to present the difference between existing construct of expectancy and our requirement of actual tangible performance consideration. We propose the following hypothesis based on the above discussion points.

H1a: There is a positive relationship between OHR and the performance consideration (PC).
H1b: There is a positive relationship between FHR and the performance consideration (PC).
H1c: There is a positive relationship between SHR and the performance consideration (PC).

HRIS is being adopted to automate various HR activities from general administrative routine tasks (OHR) such as Record Keeping, Payroll Preparation and Recruitment & Selection; to functional HRM (FHR) processes which includes Training Need Assessment, Performance Appraisal Compensation Management etc. As human capital plays a larger role in competitive advantage, functional managers expect the HRIS to provide functionality to meet the unit's goals and objectives (Power 2004). The prolonged inclusion of IS in HRM witnessed top management's acceptance for strategic decisions making (SHR) in the areas like Employee Career Development, Tumover Tracking Analysis, HR Planning etc. In similar lines with hypotheses H1a – H1c, we propose that

H2a-H2c: There is a positive relationship between OHR,FHR and SHR and the extent of adoption (EoA).

Increased use of human resource information systems (HRIS) allows professionals to achieve improved performance (Hussain, Wallace and Cornelius 2007). It has been observed that the users who were more involved in the HRIS over a period of time are expected to be more satisfied with the system and they tend to use the system to a greater extent (Baroudi, Olson and Ives 1986). Hence, we propose:

H3: There is a positive relationship between performance consideration (PC) and the extent of adoption (EoA).

Finally, based on the preceding discussions it is inevitable to test the following relationships

H4a-H4c: Performance consideration (PC) mediates the relationship between OHR, FHR and SHR and the extent of adoption (EoA).

Organization size is an important moderator for long term acceptance and the extent of adoption of HRIS (Ball 2001). Irrespective of the benefits offered by HRIS (OHR, FHR and SHR), it is expected that there is a positive correlation between HRIS benefits and organizational size (Saleem 2012). Hence we propose:

H5a-H5c: The relationship between OHR, FHR and SHR and performance consideration (PC) is moderated by Organizational Size.

Relevant work experience (construct independent of UTAUT): We further propose strong relationship between prior work experience and effort consideration among the users of HRIS. Prior work experience with HRIS (similar or different) would bring down the inherent resistance to using a system, together with a better acceptance of possible benefits that would result on both individual (becoming more efficient in day to day work) and organizational (better control on various HR processes) front. We propose that,

H6a-H6c: The relationship between OHR, FHR and SHR and performance consideration (PC) is moderated by prior work experience with HRIS.

Facilitating conditions (UTAUT): The construct facilitating conditions include perceived behavioral control (Ajzen 1991, Taylor and Todd 1995a), facilitating conditions (Thompson, Higgins and Howell 1991) and compatibility (Moore and Benbasat 1991). Facilitating conditions in general refer to resource facilitation, technological facilitation such as support services, and training services. Venkatesh et al (2003) do not consider facilitating conditions to be significant in the presence of performance expectancy and effort expectancy; conversely, we posit that regular training in terms of technological facilitation of the employees and regular system support would have an impact on the extent of usage of HRIS and assimilation of HRIS. Theoretically, this relates strongly to the work on developing absorptive capacity (Cohen and Levinthal 1990) of the employees and organizational learning process (Kogut and Zander 1992). We define this facet as ***technological facilitation***.

H7a-H7c: The relationship between OHR, FHR and SHR and performance consideration (PC) is moderated by technological facilitation (TF).

Similar to facilitation is the effect of ***management support***. Presence of management support can create a culture wherein usage of HRIS will become norm in the organization, thereby impacting the employee orientation towards the technology (Teo, Lim and Fedric 2007). We perceive that in the long run, HRIS acceptance among employees will be positive with the strong management perusal. We summarize our conceptual framework in Figure 1.

H8: There is a positive relationship between management support (MS) and the extent of adoption (EoA) of HRIS.
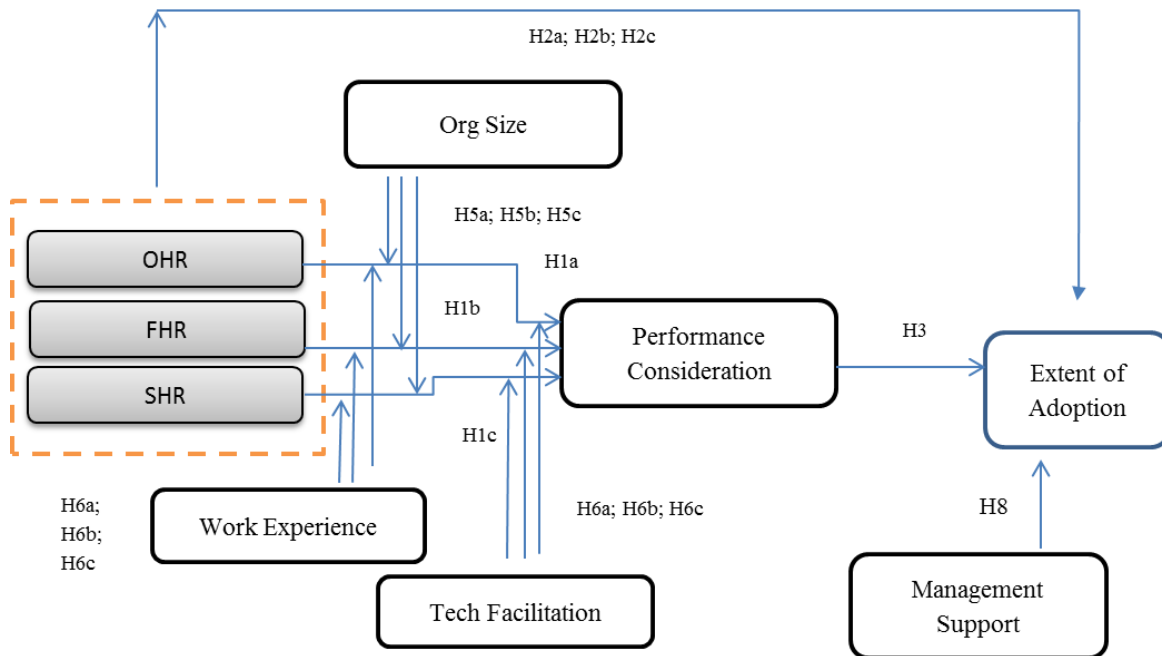
Figure 1. Research Model

Research Method and Measures

Owing to limited empirical research in HRIS adoption, items for the survey are developed through a comprehensive literature review. Where available, the items for the questionnaires were drawn from the previous research, otherwise, new items were created and appropriately reworded and modified when required (Converse and Presser 1986, Fowler 1993). Each of the latent construct was measured by at least three observable indicators (Cole 1987, Anderson and Gerbing 1984) (See Appendix).

Data Collection and Analysis

The number of survey responses collected is about 150. In order to avoid lack of yielding to generalization (MacCallum, et al. 2001) of the research model and measurement instruments, respondents were employees from organizations of different size across industries located in India (see Table 1.).

Industry	Consulting	Telecom	Retail	E-Business	Banking & Insurance	White Goods	Automobile	Energy& Power	IT	FMCG
Responses #	15 (10%)	18 (12%)	16 (10%)	12 (8%)	18 (12%)	14 (9%)	15 (10%)	16 (10%)	14 (9%)	15 (10%)

Table-1. Distribution of responses Industry-wise

For the current study, we have used purposeful sampling. On an average each respondent had minimum 6 months of experience with the current organization. A web based survey was mailed to 160 potential respondents. For pilot, 32 responses were collected. The original instrument had 46 items measuring 8 variables, including the demographics of respondents and their organization.

Post pilot analysis, certain items were deleted to improve the validity. The resulting instrument has 23 items (see Appendix). The composite reliability measure for the factors was greater than the suggested minimum level of 0.60 (Nunnally, (1967)). For internal consistency, we also checked inter-item correlations which were found to be in the range of 0.3-0.7 across variables. The average variance extracted (AVE) for each factor was above or equal to 50%. Post pilot, e-mails with modified survey link was sent to 535 employees resulting in 165 responses. Out of 165, 12 responses were discarded because of insufficient data ensuing 153 usable data sets (response rate 28.59%) (See Table 2. for the demographics).

Respondents' Demographics						
Gender		Highest Qualification			Profession	
Male	Female	Graduate	Post Graduate	Missing values	HR	Non-HR
110	43	38	82	33	71	82
Prior Experience with HRIS						
<1	1-5 yrs.	5-10 yrs.	10-15 yrs.	15<	Not Mentioned	
17	87	32	7	8	3	
Types of HRIS						
On-Premise (92)			**On SaaS (61)**			
SAP HR	Oracle PeopleSoft HCM	Others*	SAP HCM	Oracle Fusion HCM	Others*	
37	44	11	19	27	15	

*Others include open source offerings as well.

Table 2. Demographics of Respondents

All items in the survey were arranged randomly to avoid the common method bias. The questionnaire had no reference to research constructs and variables conceptualized in the study, thereby reducing the method bias. For missing data we have used mean substitution method (Little and Rubin 1987) to overcome the problem. In the absence of adequate literature, a few measures were prepared by researchers based on literature and feedback received from the industry; hence for validity purpose it was mandatory to conduct factor analysis (Hair, et al. 2006, 115); (Mahmoud and Kamel 2010). We have used Principal Component Analysis (PCA) with Varimax Rotation for this purpose. No cross-loading issues were found at the individual item levels. This demonstrates the discriminant validity of the scales. Factor loadings on minimum level 0.5 were retained for factor structure. Items with cross loading of value above 0.5 on two different factors were deleted. Items which were not showing even a single significant loading were also deleted, because they were affecting the reliability of items within the variable. The number of factors obtained per construct is summarized in Appendix.

Hypotheses Testing

Multiple regression analysis is used for analyzing linear models with control variables (Cohen, et al. 2003). To lessen the problems associated with multicollinearity, all control variables were standardized (z-scored) prior to analysis (Tabachnick and Fidell 1996). Collinearity diagnostics indicated that the regression estimates were not affected by multicollinearity, and VIF values were less than the threshold value of 5.0 (Kline 2005). The regression assumptions of normality, linearity, and homoscedasticity were reasonable (Sheeham and Cooper 2011). Test for mediation and moderation are presented next.

Results

To begin with, we first present results for four independent linear regression models in the Table 3.

Model No.	Dependent Variable	Independent Variables	Beta values	R^2
1	PC	SHR**	0.222	0.726
		OHR**	0.290	
		FHR**	0.417	
2	EoA	SHR**	0.264	0.813
		OHR**	0.306	
		FHR**	0.415	
		MS	ns*	
3	EoA	PC**	0.624	0.732
		MS**	0.284	
4	EoA	SHR**	0.210	0.829
		OHR	0.236	
		FHR**	0.313	
		PC**	0.242	
		MS	ns*	

**p value<=0.01; ns* - Non significant variable with p value >=0.05

Table 3. Different Regression Models and their Results

The regression model demonstrates that SHR, OHR, and FHR have a positive relationship with both performance consideration (PC) and Extent of Adoption (EoA). It is to inform that all calculations for mediation analysis are based on the Sobel tool available at: http://quantpsy.org/sobel/sobel.htm). The outcomes clearly establish that PC mediates the relationship between SHR and EoA; FHR and EoA; and OHR and EoA respectively (see Table 4.)

	Sobel Test	**Std error**	**p-value**
SHR	3.229	0.0429	0.001
FHR	4.705	0.0553	0.000
OHR	3.644	0.0497	0.000
	Aroian Test	**Std error**	**p-value**
SHR	3.214	0.0431	0.001
FHR	4.686	0.0555	0.000
OHR	3.6281	0.0499	0.000
	Goodman Test	**Std error**	**p-value**
SHR	3.244	0.0427	0.001
FHR	4.723	0.0550	0.000
OHR	3.660	0.0494	0.000

Table 4. Mediation Analysis Results

Analysis with Control Variables

Next we present the moderation analysis conducted with the three control variables, i.e. 'organizational size', 'work experience' and 'technological facilitation'. Each one was analyzed w.r.t. the dependent variable 'performance consideration' (see Table 5).

For the control variable 'organizational size' it is found that the organization size and its interaction terms do not have any significant impact on the results, which means that the hypothesis claiming 'organizational size' is a moderator is not supported and hence rejected.

	Model		**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**	**R Square Change**
1	Regression[a]		110.310	3	36.770	131.414	.000[b]	
	Residual		41.690	149	0.280			
	Total		152.000	152				
2	Subset tests	Org_size	0.751	1	0.751	2.715	0.102[c]	0.005
	Regression		111.061	4	27.765	100.374	0.000[d]	
	Residual		40.939	148	.277			
	Total		152.000	152				
3	Subset tests	size_FHR, size_SHR, size_OHR	.778	3	0.259	0.936	0.425[c]	0.005
	Regression		111.838	7	15.977	57.683	0.000[e]	
	Residual		40.162	145	0.277			
	Total		152.000	152				

Table 5. Results of Analysis for Organization Size as a Moderator

Conversely, with control variable 'work experience', the results demonstrate the presence of work experience variable is significant and it does impact the overall result (see Table 6). However, its interaction terms do not have any significant impact on the outcome further suggesting that the hypothesis regarding work experience as a moderator is also rejected.

Model			df	Mean Square	F	Sig.	R Square Change
1	Regression[a]	104.780	3	34.927	120.836	0.000[b]	
	Residual	39.020	135	0.289			
	Total	143.800	138				
2	Subset Tests	WorkExp	1.731	1	1.731	6.222	0.014[c]	0.012
	Regression	106.511	4	26.628	95.688	0.000[d]	
	Residual	37.289	134	0.278			
	Total	143.800	138				
3	Subset Tests	WorkExp_FHR, WorkExp_SHR, WorkExp_OHR	0.391	3	0.130	0.462	0.709[c]	0.003
	Regression	106.902	7	15.272	54.219	0.000[e]	
	Residual	36.898	131	0.282			
	Total	143.800	138				

Table 6. Results of Analysis for Work Experience as a Moderator

For variable 'technological facilitation', the presence of technological facilitation in itself as well its interaction terms do not have any significant impact on the regression results suggesting that our hypothesis regarding work experience as a moderator is rejected too (see Table 7).

Model		Sum of Squares	df	Mean Square	F	Sig.	R Square Change
1	Regression[a]	71.425	3	23.808	81.782	0.000[b]	
	Residual	38.137	131	0.291			
	Total	109.562	134				
2	Subset Tests	TF_Fact_New	0.015	1	0.015	0.050	0.824[c]	0.000
	Regression	71.440	4	17.860	60.904	0.000[d]	
	Residual	38.122	130	0.293			
	Total	109.562	134				
3	Subset Tests	TF_FHR, TF_SHR, TF_OHR	0.425	3	0.142	0.478	0.698[c]	0.004
	Regression	71.865	7	10.266	34.588	0.000[e]	
	Residual	37.697	127	0.297			
	Total	109.562	134				

Table 7. Results of Analysis for Technological Facilitation as a Moderator

Based on the detailed results presented above and ensuing analysis, the Table 8 presents an overview of hypothesis proposed and the corresponding final results obtained.

Hypotheses Supported*	Hypotheses NOT Supported
H1a, H1b, H1c, H2a, H2b, H2c, H3, H4a, H4b, H4c	H5a - H5c, H6a - H6c, H7a - H7c, and H8

Table 8. Overview of Hypotheses and Final Results

Findings and Discussion

Our work contributes to both theory and practice in multiple ways. Firstly, we have conceptualized and established the significance of extent of adoption and its difference from simple intent to adopt or adoption as a construct from a theoretical point of view. This could further inform and aid in the

evolution of TAM within existing adoption literature. Secondly, in order to fully understand the extent of HRIS adoption among the employees (both HR professionals as well as others) we successfully established the role of mediating variable i.e. performance consideration between the relationship between HRIS functions (such as OHR, FHR and SHR) and their extent of adoption. Thirdly our work clearly demonstrates that the impact of HRIS functions does not vary with the intensity of organization size, work experience and technology facilitation. The probable reason could be that with prolonged usage, users have gained expertise/familiarity with the HRIS (Teo, Lim and Fedric 2007). HRIS applications have become commonplace, hence irrespective of the size, organizations have been using HRIS for tangible advantages; large organizations for strategic decision making and small size organizations for their operational issues (OHR) (such as lower cost and reduced HR workforce). With respect to our stated research objectives, hypotheses (H1 to H4) were found to be supported and have shown positive influence on the performance consideration and extent of adoption.

The findings are consistent with many prior studies for Operational HR functions (OHR) (DeSanctis 1986, Ball 2001, Altarawneh and Al-Shqairat 2010, Saleem 2012). Our study is also in line with work of (Kovach, et al. 2002), which states that HR employees can utilize variety of collected data and leverage HRIS for administrative, functional and strategic competitive advantage.   However, in previous studies FHR was found partially consistent (DeSanctis 1986, Teo, Lim and Fedric 2001, Davies and Calderón 2005) and SHR was found to be insignificant (Davies and Calderón 2005, Hussain, Wallace and Cornelius 2007, Saleem 2012).

Our analysis demonstrates that the usage perception of HRIS systems is similar across the organizations of different sizes, among the managers of varied work experience and irrespective of training to different levels. Similar results regarding organization size and its impact on HRIS adoption were reported by (Hussain, Wallace and Cornelius 2007). The analysis rejected any significant impact of continuous support and training on HRIS systems to their employees as well as management support was found to be insignificant driver for the extent of adoption, opposing the observations from previous work (Teo, Lim and Fedric 2007). The above mentioned results could be attributed to majority sample being from new economy based firms (Banking, IT etc.) that have already adopted HRIS significantly and further push from top management is no longer required. The findings demonstrate that organizations sincerely intend to use SHR applications for future growth. Hence it is imperative for HR managers or vendors to tailor their offerings (according to the organization size and business verticals) beyond basics and inform users about the enhanced capabilities of Strategic-HRIS. Knowing SHR modules and capabilities is important as strategic HR impacts the behavior and success of the organization in the long run.

Limitations and Future Research Directions

One significant limitation was that we did not include the variable habit formation and its influence on the extent of adoption. Habit has been defined as the extent to which people tend to perform behaviors automatically because of learning (Limayem, Hirt and Cheung 2007), (Venkatesh, Thong and Xu 2012) and this could hold interesting insights for future work. Since our intent was to generalize and so we collected data from over 50 organizations spread across 10 different industries. The design of this study is not appropriate for an industry wide analysis to understand how the extent of adoption gets influenced. Therefore, future research should be carried forward with a specific industry sector for deeper insights.

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APPENDIX

Factor	Items**	Factor Loading	(α)	AVE (%)	KMO
EoA1	In my organization, the HR systems are in use across all departments.	0.751			
EoA2	The information generated from HR systems is regularly shared with the top management.	0.709			
EoA4	Our HR systems have met our expectations in terms of capabilities.	0.801	0.813	57.66	0.833
EoA6	It has led to improved HR staff acceptance.	0.794			
EoA7	Our HR systems have been regularly modified for better user experience ~ohr1	0.738			
OHR2	HR systems are regularly used for web based training.	0.794			
OHR3	In my organization HR systems provide timely information about an employee's data such as approvals; monthly or quarterly targets etc.	0.911	0.841	76.30	0.679
OHR4	HR systems in my organization provide **accurate** information about an employee's personal data	0.910			
FHR2	We use HR systems for making decisions regarding appraisals (promotions and raise etc.)	0.883			
FHR3	We use HR systems regularly to make training related decisions	0.810	0.806	72.14	0.694
FHR6	In my organization the HR systems have increased coordination between HR managers and top management	0.853			
SHR2	HR systems are used to analyze people related data for actionable business intelligence and new insights	0.793			
SHR3	We regularly engage in knowledge management activities with HR systems in place.	0.860	0.806	72.04	0.680
SHR4	In my opinion HR systems have made HR a strategic partner in the organization	0.891			
MS1	I believe that greater management support has led to greater acceptance of HR systems in my organization.	0.842			
MS2	I am regularly encouraged by my seniors to optimally use the HR/ERP systems available.	0.921	0.858	77.91	0.692
MS3	I always encourage my peers and subordinates to optimally use the HR/ERP systems available.	0.884			
TF2	In my organization, appropriate training is provided to employees towards the HR systems usage.	0.849			
TF3	Uniform information related to policies and procedures amongst employees at all levels.	0.849	0.610	72.00	0.5
PC1	Improved HR operating efficiency in terms of reduction in average time for most HR processes	0.835			
PC2	Improved HR operating efficiency in terms of reduction in average cost for most HR processes (e.g. training, recruitment, performance evaluation.	0.873	0.854	69.71	0.811
PC4	Enhanced our ability to recruit and retain top talent.	0.792			
PC5	Clear measures showcasing the impact of HR	0.838			

	investments on the overall performance of the organization (e.g. improved employee's productivity and performance have enhanced organization's profits on the whole.)				

** Items above were measured on the 5 point Likert scale, where 1 indicated 'strong disagreement' and 5 indicated 'strong agreement' with the perception measure.