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User Adoption of eHRM - An Empirical Investigation of Individual Adoption Factors using Technology Acceptance Model

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Abstract. Organizations would reap the intended benefits of Electronic Human Resource Management (eHRM) implementations through its sustained usage and adoption by individuals. This study is centered on the view that actual usage behavior is critical to studying eHRM adoption and needs to be measured in the context of the intended eHRM outcomes; operational, relational and transformational. Using a 10-item scale to measure eHRM usage behavior in a research framework grounded in Technology Acceptance Model (TAM2), this study investigates the factors influencing eHRM adoption in terms of “intention to use” and “actual usage behavior”. Results indicate support for most TAM2 hypotheses. The study also enriches our understanding of organizational context factors; scope of implementation influencing Image-Usefulness relationship and post implementation stage influencing Ease of use-Intention to use relationship.

Keywords: eHRM adoption, eHRM usage behavior, TAM2

1 Introduction

Electronic Human Resource Management (eHRM), a critical element of digital transformation of the Human Resource (HR) function has been a topic of considerable interest in recent times. eHRM is the e-enablement of the HR function that is posited to help organizations achieve cost reduction and efficiency improvement of the HR function, increased service responsiveness towards employees and improving HR’s strategic orientation (Lepak & Snell, 1998, Lengnick-Hall and Moritz, 2003, Ruel et. al., 2004). Extant literature classifies these outcomes into 3 eHRM types; Operational eHRM (cost reduction), Relational eHRM (increased service responsiveness) and Transformational eHRM (improving HR’s strategic orientation)

As the world sprints towards organizations digitally connecting their people and adapting to newer ways of working (remote logins, working from home, virtual meetings, online content co-creation, etc.), the paradigm for organizations shifts towards how easy-to-use, intuitive and engaging these digital HR technologies are for their employees. Consequently, eHRM adoption takes a front seat with both researchers and practitioners alike, because it is in the holistic adoption of these technologies lies the true benefits for organizations. As we trace back the last 3 decades, it is important to recognize those points of inflexion that have shaped the innovations in the eHRM space and therefore, the optimism, promise and expectations from eHRM in driving an organization’s HR transformation journey (Iyer, 2019). **One**, the rapid proliferation of the Internet and its capacity to integrate businesses; internally and externally. This e-enablement of the HR function has immense potential to help drive cost competitiveness

and increase service responsiveness towards employees (Ulrich, 1997, Martin & Reddington, 2010). **Two**, globalization of the world economy wherein market place imperatives drive organizations to focus on people and their talent – knowledge, skill, abilities and other attributes as key competitive differentiators (Ulrich, 2001). As Lepak and Snell (1998) say, “*Firms compete less on products and markets and more on competencies, relationships and new ideas*”. Therefore, HR innovation in terms of adapting to new competencies, newer ways of connecting people and newer ways of working through adoption of digital technologies derive prominence while continuously focusing on people productivity, engagement and their development. **Three**, the emergence of collaborative (wikis, blogs, discussion forums – linkedin, facebook, twitter, etc.) and workplace (Zoom, Slack, Workplace, etc.) technologies. Collaborative technologies have enabled organizations to socialize, provide avenues for employee “voice” and access to engagement platforms to share, co-create and collaborate their learnings (Martin et al., 2009). Workplace technologies on the other hand provide employee with the necessary productivity tools to connect remotely, work from home and seamlessly conduct business meetings, attend conference calls / webinars, knowledge sharing / brainstorming sessions and various other day-to-day work related activities. **Four**, the advent of Artificial Intelligence (AI) and Machine Learning (ML) technologies, its increasing applications in HR services and people decision making. These AI / ML based technologies also known as BOTS or digital assistants help address employee queries, drive HR process efficiencies by automating repetitive tasks and are optimistically posited to provide cognitive innovations using Natural Language Processing like persona based contextual responses to employee queries (Iyer, 2019).

2 eHRM Adoption

Literature suggests that, the performance gains and strategic advantages of technological innovation are often obstructed by user willingness to accept and use the systems (Young, 1984, Bowen, 1986). eHRM is no exception to this challenge and it has been posited that “user satisfaction” and “actual system usage” provide a more complete picture of the eHRM system’s success than if either measure were applied in isolation (Haines and Petit, 1997). In extant literature, eHRM adoption studies are in 2 categories viz. organizational adoption factors and individual adoption factors. There are a lot of studies on organizational factors influencing eHRM adoption. On the other hand, studies on individual eHRM adoption are few. Some significant studies on individual eHRM adoption have employed Technology Adoption Model (Davis, 1989). Marler, Liang & Dulebohn (2006) studied the effect of “extent of training” and “quality of training” on outcome variables such as “perceived ease of use”, “perceived usefulness”, “employee resources” and “intention to use” new software. They concluded that employee resources mediated the relationship between the extent of training and intention to use new technology. Raaij and Schepers (2008) tested the acceptance of virtual learning environments in China using the extended TAM 2 model. Marler, et. al. (2009) added a few additional constructs like perceived organization support (POS), managerial pressure to the standard TAM constructs; perceived usefulness, perceived ease of use and attitude towards using the system.

A key point to note in these individual adoption studies is that, the outcome variable in most cases is “Intention to use” and not “Actual Usage”. Even though a few studies have incorporated “Actual Use” as the outcome variable, they have measured it using a single item “*On average, how much time do you spend on the system every day. ___hours and ___minutes*”. In the words of Marler et. al. (2009), “*including an objective measure of user behavior would enhance the validity of the results and allow us to directly examine the relationship between perceived resources and system use*”. eHRM is a business application with intended operational, relational and transformational goals and outcomes at the individual HR process level (e.g. recruiting, employee and manager self-service, employee portal, leave management,

performance management, competency management, learning management, career & succession management). There would be differing levels of individual motivation and employees' attitude toward using the eHRM system depending on the type of eHRM outcome. Therefore, actual usage of eHRM needs to be measured at the individual submodule level (or HR process level) corresponding to the respective intended eHRM outcomes. The primary purpose of this study therefore, is to identify and explain the factors influencing user adoption of eHRM in terms of user acceptance (intention to use) and actual usage (Actual Behavior) at granular eHRM outcome level.

This study makes two important contributions; first, we have attempted to measure eHRM usage behavior in greater depth which is synergistic with the eHRM goals of cost reduction and productivity (operational eHRM), increasing service responsiveness (relational eHRM) and improving HR's strategic orientation (transformational eHRM). eHRM being a business application solution with multiple intended outcomes (Operational, Relational, Transformational), there would be differing levels of individual motivation to use the eHRM system. It is therefore, important to measure eHRM usage behavior for each type of eHRM outcome rather than measuring it at an overall level. We have operationalized the eHRM usage behavior construct with 10 items covering specific employee facing eHRM areas like employee records, employee portal, employee help desk, social collaboration and networking, goal setting and performance management, skill and competency management, career planning and training and development. Second, the research identifies and reinforces that "organizational context" should be considered when studying the factors influencing eHRM adoption (Marler et. al., 2009). This study identifies two such factors relating to organizational context, "scope of implementation" and "stage of implementation" that is suggested to be taken up in future research.

3 Proposed Hypothesis

We have adopted one of the most established Technology Acceptance Model (TAM2) for our study (Venkatesh and Davis, 2000). Before testing the eHRM adoption to additional constructs in TAM 2, it is important to consider the original TAM for testing eHRM adoption. The original TAM (Davis, 1989) has been empirically tested in multiple settings and applications and found to be relevant thereby establishing the robustness of its theoretical foundation (Adams et. al, 1992, Legris et. al., 2003). We further rely on studies relevant to eHRM field viz., eLearning system adoption (Selim, 2003, Ong et. al., 2004, Raiij and Schepers, 2008) which have been empirically tested for the constructs in the original TAM viz., Perceived Usefulness (USE) and Perceived Ease of Use (EASE) which have a significant influence on an individual's intention to use (INT) a technology. According to TAM, an individual's behavioral intention to use a system is determined by two beliefs; "perceived usefulness" defined as the extent to which a person believes that using a system will enhance his or her job performance and "perceived ease of use" defined as the extent to which a person believes that the system usage be free of effort. TAM also theorizes that 'perceived usefulness' is influenced by "perceived ease of use" because all things being equal, the easier the system to use, and the more useful it will be (Venkatesh and Davis, 2000). For example, Individuals may resist updating their training and certification details if on one hand they find that the "learning management system" is not "easy to use" (involving too many clicks, too much mandatory information to be provided, inflexible). On the other hand, even if the system were made "easy to use", their "intention to use" and "actual usage" will be negatively impacted if individuals perceive that their training history / certification status is not considered during potential assessments, career planning or creating development plans. In line with TAM, we hypothesize;

- H1: Perceived Usefulness of the eHRM system (USE) will have a significant positive effect on Intention to Use the eHRM system (INT).
- H2: Perceived Ease of Use of the eHRM system (EASE) will have a significant positive effect on Perceived Usefulness of the eHRM system (USE).
- H3: Perceived Ease of Use of the eHRM system (EASE) will have a significant positive effect on Intention to Use the eHRM system (INT).
- H4: Intention to Use the eHRM system (INT) will have a significant positive effect on actual eHRM usage behavior (USAGE).

Social Influence Processes. TAM2 discusses two basic constructs with reference to social processes influencing behavioral intention viz., Subjective Norm (SN) and Image.

Subjective Norm. In Theory of Reasoned Action (Fishbein and Ajzen, 1975) and Theory of Planned Behavior (Ajzen, 1991), the theoretical underpinning for understanding the social influence on behavioral intention, Subjective Norm has been defined as “a person’s perception that most people who are important to them think that they should or should not perform a behavior in question. In other words, as stated by Venkatesh and Davis (2000), “the rationale for a direct effect of subjective norm on behavioral intention is that people may choose to perform a behavior even if they are not themselves favorable towards the behavior or its consequences, if they believe that one or more important referents think that they should and they are sufficiently motivated to comply with the referents”. We therefore, hypothesize:

- H5: Subjective Norm (SN) will have a positive direct effect on perceived usefulness of the eHRM system (USE)
- H6: Subjective Norm (SN) will have a positive direct effect on intention to use the eHRM system (INT).

Image and Social Influence. “In a typical work environment with a high degree of interdependence with other social actors in carrying out ones duties, increased status within the group is a basis of power and influence via processes such as social exchange, coalition formation and resource allocation” (Blau, 1964, Pfeffer, 1981, 1982). “By performing behaviors that are consistent with group norms, an individual achieves membership and the associated social support. This results in increased power and influence that provides a general basis for greater productivity” (Pfeffer, 1982). As a result, an individual may perceive that using the eHRM system will lead to performance improvements indirectly due to image enhancement over and above the performance benefits attributable to the system itself. For example, individuals who are a part of specialist communities (compensation and rewards, innovation, research & development, etc.) would perceive themselves as having a better image than others for being a part of an elite group. The member individuals in addition would also perceive benefits at the prospect of collaborative learning from the elite community thereby; forming positive perceptions related to image and improved job performance (perceived usefulness). We therefore, hypothesize that:

- H7: Subjective Norm (SN) will have a positive effect on image perception towards the eHRM system (IMAGE)
- H8: Image will have a positive effect on perceived usefulness of the eHRM system (USE).

Cognitive Instrumental Processes. TAM 2 theorizes four cognitive instrumental determinants of perceived usefulness viz., job relevance (JR), output quality (OQ), result demonstrability (RD) and perceived ease of use. These cognitive instrumental constructs have been theorized by Venkatesh and Davis (2000) after carefully studying multiple theoretical foundations viz. Work Motivation theory (Vroom, 1964), Action theory from social psychology (Fishbein

and Ajzen, 1975) and Task-contingent decision making from behavioral decision theory (Beach and Mitchell, 1978). Based on their extensive study of the above theories, they posited that “people use mental representation for assessing the match between important work goals and consequences of performing the act of using a system as a basis for forming judgments about the use-performance contingency. We therefore, hypothesize;

- H9: Job Relevance (JR) will have a positive effect on the perceived usefulness of the eHRM system (USE).
 H10: Output Quality (OQ) will have a positive effect on perceived usefulness of the eHRM system (USE).
 H11: Result Demonstrability (RD) will have a positive effect on perceived usefulness of the eHRM system (USE).

4 Research Methods

4.1 Measures – TAM 2

For the present study, all the nine constructs of the TAM2 (Venkatesh & Davis, 2000) viz., Subjective Norm, Image, Job Relevance, Output Quality, Result Demonstrability, Perceived Usefulness, Perceived Ease of Use, Intention to Use and Actual Usage Behavior were considered as a part of the eHRM adoption model to be tested and were measured using 26 items as proposed in the original model by Venkatesh and Davis (2000). The TAM 2 measures used in the study are shown in Appendix – 1.

4.2 Measures –eHRM Usage Behaviour

The final outcome construct of TAM 2 viz., usage behaviour was specifically developed for the current research. Though Venkatesh and Davis (2000) have indicated that they measured “usage behaviour” by asking a single question, “*On average, how much time do you spend on the system everyday? ___ hours and ___ minutes*”, it was felt during the design phase for the current research that a mere duration of use does not capture the entire domain of eHRM actual usage behaviour. eHRM is a business application with intended operational, relational and transformational goals and outcomes at the individual HR process level (e.g. recruiting, employee and manager self-service, employee portal, leave management, performance management, competency management, learning management, career & succession management). There would be differing levels of individual motivation and employees’ attitude toward using the eHRM system depending on the type of eHRM outcome. We therefore, argue that actual usage of eHRM needs to be measured at the individual submodule level (or HR process level) corresponding to the respective intended eHRM outcomes.

Accordingly, 10 items were created for the 3 attributes of eHRM usage behavior viz., operational (2 items), relational (4 items) and transformational (4 items). These 10 items representing eHRM usage is provided in Table-4. The combinations of items borrowed from the original TAM and the 10 items created for “eHRM usage behavior” were subject to scale validity check viz., face validity and construct validity. We also subjected the scale items to other forms of robust validation checks such as discriminant, convergent and predictive validity in order to confirm construct validity (Hardesty and Bearden, 2004).

4.3 Data Collection and Sampling

Primary data was collected through structured undisguised questionnaires administered to the respondents. The questionnaires were administered through individual face to face meetings or through e-mail as per the convenience of the respondents at home or in office. The 26 items from the TAM 2 scale were measured on a 5-point Likert scale (5- Strongly Agree to 1- Strongly Disagree) while the 10 items pertaining to eHRM usage behaviour were measured on a 4-point scale (0-Don't use, 1- Low usage, 2- Medium usage and 3- High usage). A total of 249 correct responses were received and considered for further analysis. It was found from the initial review of the responses that most of the organizations had implemented the following eHRM processes viz., HR automation of employee records, leave, payroll, time accounting and performance management. Therefore, in order to measure eHRM usage behavior correctly, we selected only the response of three items (u1, u2 and u8 – refer Table-4) of eHRM usage behavior corresponding to the above implementation scope for inclusion in the structural model and further analysis.

4.4 Response Bias

The existence of response bias for the present research was assessed by performing a t-test on the responses collected from 2 modes of survey viz. personal administration and email. The t-test results indicate that there is no significant difference between the responses obtained by these 2 modes of administration indicating that the responses obtained are not susceptible to the “response bias” owing to different data collection methods adopted except for 2 constructs viz., OQ and Image.

4.5 Analysis

We have applied Structural Equation Modeling (SEM), a second-generation analytical technique (Iyer & Israel, 2012) as the analytical tool of analysis and maximum likelihood estimation method for examining the proposed hypothesis. Taking support from the studies by various researchers who have used similar analytical tool (e.g., Anderson & Gerbing, 1988), we chose a two-step analysis method. In the first step, we conduct a Confirmatory Factor Analysis (CFA) of the overall measurement model based on the correlation coefficient matrix of each factor of eHRM adoption in TAM2 and usage behaviour developed exclusively for the current study. This helps in confirming the fitness of the 9 constructs in terms of composite reliability, convergent and discriminant validity. In the second step, the structural model is further examined based on the covariance matrix and the hypotheses of the study tested for the entire eHRM adoption / usage behaviour model.

5 Results

5.1 Exploratory Factor Analysis and Reliability

Before proceeding with assessment of model of the present study, it was decided to test the univariate normality pattern of the study variables. Accordingly, we computed skewness and kurtosis for each of the variables of the TAM 2 model. All the variables have passed the stipulated criterion of ± 2 value for skewness and kurtosis (Hair et. al, 2010). Having assessed that the data collected do not indicate any sign of non-normality, we proceeded with performing an Exploratory Factor Analysis (EFA). The factor analysis (varimax rotated) results of all the 26 items for a 9-factor solution extracted 9 factors with the respective items clearly loading onto their corresponding factors. The KMO measure of sampling adequacy was 0.825 and the Bart-

let's test of sphericity (χ^2 value of 4765.5, $df=406$) was significant at 0.001 level. All the 9 factors extracted resulted in a total variance of 80.327. Upon confirming the existence of clear dimensions of TAM2 components in the EFA study, we moved on to assess the consistency of the data pertaining to each of the 9 components extracted separately. The Cronbach α reliability coefficients were greater than the acceptable limit of 0.7 for each of the TAM2 components (dimensions) as prescribed by Nunnally (1978).

5.2 Common Method Variance

Common Method Variance was not found to be a significant threat in the present research because the results of the EFA of all the study variables brought out 9 factors with 80% total variance explained with the first factor explaining 27% of the total variance (unrotated) and 12.14% of total variance (varimax rotated) fulfilling Harman's single factor solution criteria.

5.3 TAM 2 Measurement Model for eHRM Adoption

A first order Confirmatory Factor Analysis (CFA) was conducted to confirm the fitness of the measurement model. The measurement model test results shown in Table-1 indicate that the factor loadings of most of the items were above 0.7 (except four items where the factor loading was marginally less at 0.65 and 0.68). These items were retained because they were very critical to the study and the judges who validated the scales confirmed their relevance and importance for the study. One usage behavior item, "I use the eHRM system for my goal / key result area (KRA) setting process and entering my self-evaluation, achievements and training needs" had a factor loading of 0.59. This was deliberated upon by the researchers and primary analysis showed that this item is critical to the study since majority of the organizations who were covered in the study had implemented performance management process in their organizations and it was felt important to capture the actual usage behavior for this vital HR process. Further, removal of the item was also not significantly improving the model fit. Therefore, we retained this item in the final analysis. The critical ratio (CR) values of all the items reached the significant level ($p<.001$). We further analyzed the composite reliability for each of the constructs and found them all to be greater than 0.7 except for one factor, "Output Quality" which was marginally lower at 0.69. This implies that all the components exhibit a good internal consistency as the composite reliability coefficients are greater than 0.6 as recommended by Bagozzi & Yi (1990). We calculated the Average Variance Extracted (AVE) estimates for each of the factors and all of them are nearly equal to or greater than 0.5 (Hair et. al, 2010) thereby confirming the convergent validity of the factors in the model. The AVE of each construct was further compared with the squared correlations of all other construct combinations (Table-2). The AVE of all the constructs was found to be greater than the squared correlations of the other construct combinations revealing the independent nature of each of the TAM2 constructs. Overall, the above results provide adequate evidence of convergent validity, discriminant validity and composite reliability of the model adopted for the study. The other key model fit statistics and values of the CFA, CFI = 0.914 and RMSEA = 0.074 indicate an acceptable level of model fit.

5.4 Testing TAM 2 Structural Model for eHRM Adoption – I

The results of the Structural Model for testing eHRM adoption are shown in Table-3. The TAM 2 model for eHRM adoption was tested using Structural Equation Modeling (SEM). In this study, we have simultaneously tested all the nine constructs of the TAM 2 in our structural model. The results are shown in Table-3. Looking at the results therein, we find that the overall fit using CFI criteria was 0.828, RMSEA = 0.10, $\chi^2/df = 3.493$, indicating the poor fit of the model. A perusal of the structure coefficients and their corresponding significance in Table-3 indicated that paths $OQ \rightarrow USE$, $Image \rightarrow USE$ and $Ease \rightarrow INT$ were not significant. This being

the case, a scrutiny of factor loadings (lambda coefficients) of the corresponding items on their respective factors indicated that only item a19, "The quality of the output I get from the eHRM system is high" belonging to OQ had a non-significant and poor loading of 0.07 and warranted removal from the overall model. Hence, it was decided to discard the same and re-run the model. Although we felt the need to retain at least one item related to OQ, modification indices indicated that χ^2 value would be reduced by 21.838 if the item a20 of OQ is merged with RD. A discussion with the experts also indicated that clubbing of item a20 of OQ was meaningful as the content of a20 was similar to the contents of RD. Further discussion with experts also revealed that the perceived closeness of meaning by the respondents can be attributed to the words "output" (for items in OQ) and "results" (for items in RD) and probably this is the reason why modification indices of SEM indicated the need for linking item a20 with RD. Further, this study pertains to user adoption of eHRM systems and OQ discusses that "given a choice set of multiple relevant systems, an individual would be inclined to choose a system that delivers highest quality". In the context of eHRM systems, individuals seldom have a choice of multiple eHRM systems to base a comparative preference with regard to OQ. Hence, there is a good possibility that the respondents perceived the items with reference to increasing their job performance rather than the overall quality of the system itself. We therefore, decided to remove OQ and its item a19 from the model and club item a20 with RD for the next SEM run.

5.5 Testing TAM 2 Structural Model for eHRM Adoption - II

Results of TAM2 after removal of OQ and addition of a20 with RD in the model yielded model fit indices of CFI = 0.857, RMSEA = 0.093, $\chi^2 = 835.93$ (df = 265), $\chi^2/df = 3.154$. All this indicated that removal of OQ as a separate component of TAM2 has significantly improved the model fit ($\Delta \chi^2 = 162.92$, $\Delta df = 23$). However, a perusal of structural path coefficients between Image \rightarrow USE, Ease \rightarrow INT and RD \rightarrow USE were found insignificant. A scrutiny of modification indices revealed that the χ^2 statistic can be reduced by 69.97 by linking RD to JR. Discussion on the relevance of connecting the path from RD \rightarrow JR led us to the reasoning that since eHRM is a business application and its adoption and usage by individuals could be purely for the purpose of performing in their current and potential jobs, users would consider as important and project only those results that are relevant to their current and future jobs. This reasoning corroborates with Venkatesh & Davis (2000) view that: "If a system produces effective job-relevant results desired by the user, but does so in an obscure fashion, users of the system are unlikely to understand how useful such a system really is (p 192)." This led us to the reasoning that the results from the eHRM system would benefit individuals in either reducing their administrative burden or lead to higher productivity and flexibility due to presence of automated workflow driven self-service. Further, individuals would benefit from competency building, greater knowledge exchange and thereby advance themselves towards career growth in their respective organizations. It was hence, reasoned that Results Demonstrability has an influence on "perceived usefulness" for individuals, if realized in the context of their performance in their current jobs and building competencies towards advancement into future jobs ("job relevance"). Hence, it was decided to test the model of TAM2 with RD connected to JR as it was convincing as stated above.

5.6 Testing TAM 2 Structural Model for eHRM Adoption - III

In the third SEM run, as anticipated, we found significant impact of RD on JR with a structure coefficient of 0.6, while the relationship between RD to Perceived Usefulness was found to be insignificant. The model fit statistics also improved considerably viz., CFI = 0.902, RMSEA = 0.079, $\chi^2 = 644.13$ (df = 252), $\chi^2/df = 2.556$ (Table-3). The modification indices also did not indicate any major reduction in χ^2 for further modifications to the model and hence is validated in the current study. Nonetheless, the relationship between TAM2 components viz., Image and

Perceived Usefulness was again found insignificant. We analyzed this also closely and felt that since the sample population comes from organizations that have implemented the basic eHRM system components viz., employee records, employee lifecycle events, payroll, benefits, time and attendance and performance management the sample population could not perceive these transactional process as being a source of status or prestige in the organization. Probably, these results would have been different if the sample population included organizations that had implemented Integrated Talent Management Systems (especially Career and Succession Planning, Competency Management, Learning and Knowledge Management) or Web 2.0 collaboration based Social Networking initiatives in the organization. Usage of these systems are either related to an individuals' career growth (in the case of Talent Management Systems) or related to contemporary technologies (Web 2.0 collaboration and social networking) both of which could potentially drive "internalization" and "individualization" amongst individuals. The potential of these systems, especially, Web 2.0 and social networking in the context of social exchange and social interdependence is perceived as a source of power, influence and enhanced status by individuals. We therefore, argue that image will positively impact perceived usefulness for individuals from organizations that have implemented talent management systems and social networking processes.

Another TAM 2 relationship that was found non-significant was "perceived ease of use" and "intention to use". This finding was consistent with the results from recent research (Szajna, 1996, Chau and Hu, 2002, Selim, 2003, Wu and Wang, 2005). A very significant reasoning by Raij and Schepers (2008) explains this phenomenon of non-significance fundamentally. They state that TAM 2 (Venkatesh and Davis, 2000) did not find any direct post-implementation effects of "perceived ease of use" on "intention to use". On the contrary, the direct effect posited in TAM 2 was in the context of pre-implementation stage. Therefore, in accordance with Raij and Schepers (2008), we also reason that "as users gain experience with a new eHRM system, perceived ease of use becomes less profound since instrumentality overshadows concerns about the eHRM system's ease of use (Adams et. al., 1992, Straub et. al., 1997). All the other hypotheses of the study were supported and found significant. The overall model fit statistics viz., CFI = 0.902, RMSEA = 0.079, $\chi^2 = 644.13$ (df = 252), $\chi^2/df = 2.556$ (Table-3) indicates an acceptable level of model fit (Hair et. al, 2010).

6 Discussion

Through an in-depth study of a large sample population covering individuals from organizations across all major industries, we have understood the factors affecting eHRM adoption through one of the most accepted Technology Acceptance Model – TAM2 (Venkatesh and Davis, 2000). Overall, the hypothesized model fit the data well and most of the TAM2 hypotheses were supported in the study. We did not find support for hypotheses H3, H8 and H11 though. However, a more detailed analysis led us to enrich our understanding of the role played by organizational context factors in explaining the relationships mentioned in H3, H8 and H11.

Hypotheses H3, the effect of eHRM's perceived ease of use on intention to use was not supported. On careful analysis, we realized that most of the respondents belonged to organizations where eHRM was in the post-implementation phase. Raij and Schepers (2008) also found a similar phenomenon in their study of acceptance of virtual learning environments and reasoned that TAM2 did not find any direct post-implementation effects of "perceived ease of use" on "intention to use". Marler et. al. (2009) also found similar results in their study of Employee Self Service (ESS) technology adoption wherein they observed a marked change in the relationship between ease of use and attitude in the post implementation scenario and suggested that ease of use becomes redundant with perceived usefulness, post implementation. We make

an important inference that as individuals gain experience of continuously using eHRM systems, post implementation, instrumentality overshadows concerns about ease of use. Therefore, unless new eHRM system alternatives offer significantly better ease of use as compared to what the users are already comfortable with and habituated to – “intention to use” will not be significantly impacted by “perceived ease of use”. Future research should consider “stage of implementation” – an organization context while studying the relationship between ease of use and intention to use.

Hypothesis H8, the effect of “image” on “perceived usefulness” was not supported. On careful analysis, we realized that the sample population belonged to organizations who had implemented only the core eHRM components like employee records, lifecycle events, payroll, time and attendance and performance management. These organizations had not implemented the other eHRM processes like integrated talent management (career and succession planning, learning and development) and Web 2.0 technologies (social networking, collaboration). Though we had not included this aspect in our main hypothesis, we probably would have got support for the “image” to “perceived usefulness” relationship if the sample organizations had implemented integrated talent management, social networking and web 2.0 collaboration. The potential of these systems, especially, in the context of social exchange and social interdependence is perceived as a source of power, influence and status by individuals. We therefore, suggest that future research focus on the relationship between “image” and “perceived usefulness” in the context of “implementation scope and coverage”.

Hypothesis H11, the effect of “results demonstrability” to “perceived usefulness” was also not supported. We carefully, analyzed the results and found a link between “results demonstrability” and “job relevance”. This led us to probe further into its significance, though we had not hypothesized the relationship. We infer that eHRM is a business application and individuals’ perception of its usefulness would largely depend on its ability to demonstrate results that are relevant in the context of an individual’s performance in their current or potential jobs. Therefore, results demonstrability in the context of “job relevance” makes more meaning in the study of its relationship with perceived usefulness. This probably explains our finding of significant support for the “results demonstrability” linkage with “job relevance”.

7 Contributions and Implications

This study makes two significant contributions. First, this research reinforces the organizational context angle to be considered when studying the factors influencing eHRM adoption (Marler et. al, 2009). In this study, we have identified two such factors of organizational context – “scope of implementation” (effect of Image on perceived usefulness) and “stage of implementation” (effect of ease of use on intention to use). Second, we have called for measuring “eHRM usage behavior” in a detailed manner rather than measuring it at an overall level. We argue that eHRM is a business application with differing outcomes at operational, relational and transformational stages of eHRM evolution. Organizations who implement eHRM are at various stages of maturity in terms of eHRM adoption and hence, measuring eHRM usage behavior at an overall level does not seem logical. There seems to be a clear gap in literature in the way eHRM usage is measured. As a first step, therefore, we have attempted to create a scale to measure eHRM usage behavior with a 10 point scale spanning the three eHRM types stated in literature – operational, relational and transformational). Our 10 point eHRM usage scale focuses on individuals (in effect we can say Employee Self-Service -ESS) and covers employee records, leave, mobility, internal job postings (Operational eHRM), employee portal, helpdesk, Web 2.0 collaboration, social networks (Relational eHRM) and competencies, goal setting, performance reviews, career planning, learning and development (Transformational eHRM).

Though we created this 10-point scale and administered it all the respondents, we got responses only for 3 items which covered employee records, leave and performance management. This was because most of the organizations from where we got individual responses had not implemented the other eHRM processes – a clear case of organizational context of “implementation scope”. Therefore, though we could not test the entire 10-point scale, we believe we have initiated a serious discussion on measuring eHRM usage behavior more objectively and in greater detail. Future research should identify a more comprehensive and innovative sampling procedure to cover those organizations which have implemented all the eHRM types to test eHRM adoption and in particular, eHRM usage behavior.

Table 1. Constructs & Indicators of measurement items of eHRM adoption – First Order

| Measurement Item | Factor Loading | Standard Error | Error Variance | CR Value | Construct Alpha* | AVE |
|------------------|----------------|----------------|----------------|----------|------------------|-------------|
| USE | | | | | 0.93 | 0.76 |
| (a1) | 0.91 | 0.10 | 0.82 | 14.84 | | |
| (a2) | 0.93 | 0.09 | 0.86 | 15.19 | | |
| (a3) | 0.90 | 0.10 | 0.80 | 14.68 | | |
| (a4) | 0.74 | 0.05 | 0.55 | | | |
| EASE | | | | | 0.86 | 0.61 |
| (a5) | 0.73 | 0.07 | 0.54 | 11.56 | | |
| (a6) | 0.82 | 0.07 | 0.67 | 12.95 | | |
| (a7) | 0.79 | 0.07 | 0.62 | 12.52 | | |
| (a8) | 0.78 | 0.09 | 0.61 | | | |
| SN | | | | | 0.92 | 0.85 |
| (a9) | 0.88 | 0.06 | 0.77 | 15.15 | | |
| (a10) | 0.96 | 0.07 | 0.93 | | | |
| IMAGE | | | | | 0.87 | 0.70 |
| (a14) | 0.68 | 0.07 | 0.47 | 12.24 | | |
| (a15) | 0.93 | 0.06 | 0.86 | 17.81 | | |
| (a16) | 0.87 | 0.05 | 0.76 | | | |
| JR | | | | | 0.88 | 0.79 |
| (a17) | 0.91 | 0.08 | 0.82 | 15.29 | | |
| (a18) | 0.87 | 0.06 | 0.75 | | | |
| OQ | | | | | 0.69 | 0.53 |
| (a19) | 0.80 | 0.12 | 0.63 | 8.77 | | |
| (a20) | 0.65 | 0.11 | 0.43 | | | |
| RD | | | | | 0.88 | 0.66 |
| (a21) | 0.78 | 0.05 | 0.61 | 16.01 | | |
| (a22) | 0.83 | 0.05 | 0.69 | 17.93 | | |
| (a23) | 0.92 | 0.11 | 0.85 | | | |
| (a24R) | 0.68 | 0.06 | 0.46 | 12.73 | | |
| INT | | | | | 0.89 | 0.81 |
| (a25) | 0.88 | | 0.77 | | | |
| (a26) | 0.92 | 0.08 | 0.84 | 14.51 | | |
| USAGE | | | | | 0.72 | 0.47 |
| (u1) | 0.77 | 0.13 | 0.59 | | | |
| (u2) | 0.68 | 0.13 | 0.46 | 7.79 | | |
| (u8) | 0.59 | 0.11 | 0.35 | 7.28 | | |
| <i>Fit Index</i> | | | | | | |
| Chi-Square (df) | 623.39 | 263.00 | | | | |
| CFI | 0.914 | | | | | |
| RMSEA | 0.074 | | | | | |

(*)Composite Reliability

Table – 2. Mean, Standard Deviation, Squared Correlations and AVE for the model constructs compared with squared correlations of other constructs

| | Mean | SD | USE | EASE | SN | IMAGE | JR | OQ | RD | INT | USAGE |
|-------|------|-------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| USE | 4.12 | 0.704 | 0.757 | | | | | | | | |
| EASE | 4.05 | 0.644 | 0.338 | 0.608 | | | | | | | |
| SN | 3.55 | 0.860 | 0.151 | 0.089 | 0.846 | | | | | | |
| IMAGE | 2.37 | 1.028 | 0.034 | 0.010 | 0.225 | 0.695 | | | | | |
| JR | 3.90 | 0.848 | 0.286 | 0.124 | 0.095 | 0.078 | 0.788 | | | | |
| OQ | 3.62 | 0.784 | 0.229 | 0.287 | 0.062 | 0.001 | 0.348 | 0.531 | | | |
| RD | 3.73 | 0.720 | 0.104 | 0.090 | 0.040 | 0.110 | 0.362 | 0.371 | 0.656 | | |
| INT | 3.93 | 0.708 | 0.113 | 0.061 | 0.172 | 0.264 | 0.194 | 0.028 | 0.206 | 0.807 | |
| USAGE | 2.72 | 0.664 | 0.000 | 0.001 | 0.003 | 0.099 | 0.030 | 0.000 | 0.126 | 0.032 | 0.466 |

Values in bold shown diagonally in the table indicate the Average Variance Extracted.
 Values shown below the diagonal are squared correlations.

Table – 3. Structural Model for testing eHRM Adoption using TAM2

| Model | Standardized Coefficient | χ^2 | df | χ^2/df | CFI | RMSEA |
|------------------|--------------------------|-----------------|------------|--------------|--------------|--------------|
| Model - 1 | | 1005.855 | 288 | 3.493 | 0.828 | 0.1 |
| SN ----> Image | 0.476 *** | | | | | |
| Image ----> Use | -0.083 | | | | | |
| SN ----> Use | 0.187** | | | | | |
| SN ----> INT | 0.331 *** | | | | | |
| JR ----> Use | 0.343*** | | | | | |
| OQ ----> Use | -0.027 | | | | | |
| RD ----> Use | 0.111** | | | | | |
| Ease ----> Use | 0.477*** | | | | | |
| Use ----> INT | 0.198 ** | | | | | |
| INT ----> Usage | 0.16 ** | | | | | |
| Ease ----> INT | 0.031 | | | | | |
| Model - 2 | | 835.93 | 265 | 3.154 | 0.857 | 0.093 |
| SN ----> Image | 0.477*** | | | | | |
| Image ----> Use | -0.031 | | | | | |
| SN ----> Use | 0.197** | | | | | |
| SN ----> INT | 0.334*** | | | | | |
| JR ----> Use | 0.397*** | | | | | |
| RD ----> Use | -0.25 | | | | | |
| Ease ----> Use | 0.466*** | | | | | |
| Use ----> INT | 0.192** | | | | | |
| INT ----> Usage | 0.161** | | | | | |
| Ease ----> INT | 0.037 | | | | | |
| Model - 3 | | 644.133 | 252 | 2.556 | 0.902 | 0.079 |
| SN ----> Image | 0.483*** | | | | | |
| Image ----> Use | -0.046 | | | | | |
| SN ----> Use | 0.220*** | | | | | |
| SN ----> INT | 0.332*** | | | | | |
| JR ----> Use | 0.422*** | | | | | |
| RD ----> Use | -0.049 | | | | | |

| | | | | | | |
|-----------------|----------|--|--|--|--|--|
| Ease ----> Use | 0.471*** | | | | | |
| Use ----> INT | 0.182** | | | | | |
| INT ----> Usage | 0.161** | | | | | |
| Ease ----> INT | 0.052 | | | | | |
| RD ----> JR | 0.601*** | | | | | |

*** p<.001 ** p<.01 * p<.05

Table-4. Items for measuring Actual eHRM Usage Behavior

| # | eHRM process | |
|-----|---|---|
| u1 | I use the eHRM system to view and update my personnel records like change of address, marital status, contact details, dependent / beneficiary information and tax declarations | O |
| u2 | I use the eHRM system to apply for leave, compensatory off, applying for change of department or location or any other job related attribute. | O |
| u3 | I use the eHRM system to review and apply for jobs through Internal Job postings and refer job postings to my friends under the company's employee referral scheme | R |
| u4 | I use the eHRM – employee portal to check the company directory and organization structure and to update myself on company communication, policies & guidelines | R |
| u5 | I use the eHRM – Help desk functionality to log in requests for resolution of any job related issues, for eg. Leave regularization, payroll corrections, performance rating related, or any other personal or job related issues. | R |
| u6 | I participate in “in-company” eHRM Web 2.0 collaboration initiatives (eg. blogging, discussion boards) by actively voicing my opinions and sharing my knowledge and experience. | R |
| u7 | I use the eHRM system to update my skills and competencies and review my competency improvement areas | T |
| u8 | I use the eHRM system for my Goal / KRA setting process and entering my self-evaluation, achievements and training needs | T |
| u9 | I carefully review the career paths available on the eHRM system and work with my manager to design development plans to help me grow up the career ladder | T |
| u10 | I use the eHRM system for all my training needs eg. Enrolling into a course, launching and attending the course, entering feedback and cost details, etc. | T |

O – Operational eHRM, R – Relational eHRM, T – Transformational eHRM

Appendix 1. TAM 2 measures used in the study

| Item | Description |
|--------------|--|
| USE | |
| (a1) | Using the eHRM system improves my performance in my job |
| (a2) | Using the eHRM system in my job increases my productivity |
| (a3) | Using the eHRM system enhances my effectiveness in my job |
| (a4) | I find the eHRM system to useful in my job |
| EASE | |
| (a5) | My interaction with the eHRM system is clear and understandable |
| (a6) | Interacting with the eHRM system does not require a lot of my mental effort |
| (a7) | I find the eHRM system easy to use |
| (a8) | I find it easy to get the eHRM system to do what I want it to do |
| SN | |
| (a9) | People who influence my behavior think that I should use the eHRM system |
| (a10) | People who are important to me think that I should use the eHRM system |
| IMAGE | |
| (a14) | People in my organization who use the eHRM system have more prestige than those who do not |
| (a15) | People in my organization who use the eHRM system have a high profile |
| (a16) | Using the eHRM system is a status symbol in my organization |
| JR | |
| (a17) | In my job, usage of the eHRM system is important |

| | |
|------------|---|
| (a18) | In my job, usage of the eHRM system is relevant |
| OQ | |
| (a19) | The quality of the output I get from the eHRM system is high |
| (a20) | I have no problem with the quality of the eHRM system's output |
| RD | |
| (a21) | I have no difficulty telling others about the results of using the eHRM system |
| (a22) | I believe I could communicate to others the consequences of using the eHRM system |
| (a23) | The results of using the eHRM system are apparent to me |
| (a24R) | I would have difficulty explaining why using the eHRM system may or may not be beneficial |
| INT | |
| (a25) | Assuming I have access to the eHRM system, I intend to use it |
| (a26) | Given that I have access to the eHRM system, I predict that I would use it |

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