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Research paper

Determinants of continued usage intention of electronic human resource management

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Abstract

This study examines on a model extension of the attitude towards using Electronic Human Resource Management (E-HRM) by linking attitude to E-HRM continuance usage intention. Technology Continuance Theory (TCT) is adapted and integrated with Technology Acceptance Model (TAM), Expectation Confirmation Model (ECM), and Cognitive Model (COG) and empirical findings from prior studies about continued use of information systems. Research hypotheses derived from this model are empirically validated using the responses to a survey on E-HRM usage, collected from 193 E-HRM users. Based on the valid response collected from a survey questionnaire, Partial Least Square (PLS) was employed to examine the research model. The results indicated that the perceived usefulness, attitude and satisfaction were positively related to continuance usage intention of E-HRM. Perceived ease of use, satisfaction and perceived usefulness were positively related to attitude. Perceived usefulness and confirmation were also found to be positively related to satisfaction. Perceived ease of use and confirmation were found to be positively related to perceived usefulness. Future empirical studies based on the model studied in this paper should help identify areas with significant impact on users' continuance usage intention towards using E-HRM technology in a fast-moving environment. This study is a pioneer study of continuance usage intention with E-HRM, especially of the relationship between continuance usage intention and its determinants.

Keywords: *Attitude; Continuance usage intention; E-HRM; Malaysia; Technology Continuance Theory.*

1. Introduction

The Internet is developing very rapidly in recent years and changing every aspect of the way an organization conducts business; Human Resource Management (HRM) is one of the latest developments of web enablement [1-3]. HR function has undergone dramatic change, owing, it would seem, to greater use of rapidly evolving information technology [4]. HR activities can now be delivered, not only by specialized HR professionals, but also increasingly by information technologies [5]. The rapid development of Internet during the last decade has boosted the implementation and application of Electronic Human Resource Management (E-HRM) [6-7].

According to Olivas-Lujan et al. [8], HRM departments using information and communication technologies (ICTs) is becoming an increasingly important phenomenon commonly referred to as E-HRM. E-HRM is essentially the decentralization of HR functions to management and employees [9], but at the same time, HRM allows technology to develop its full potential [10].

Generally, E-HRM is believed to provide a number of key advantages to organizations, such as improve efficiency and reduce costs associated with HRM [11], facilitate a shift in HR role to a more strategic level [12-14] and improve in client services [13], from an administrative paper-and-pencil handling entity [4, 8] and labour-intensive HR tasks [8]. E-HRM applications are being used in various disciplines of HRM such as recruitment [15], selection [16], performance management [17], and payroll administration [18] however, organizations do not yet perceive that E-HRM systems can help them make better HR decisions [19].

The use of ICTs in human resource services has become an important strategy to gain competitive advantage for organizations [20]. HR can claim to create competitive advantage and align the function more closely with corporate strategy by creating added value for managers and employees through more effective information flows in its 'market space' [21]. Moreover, Grant and Newell [22] mentioned that effective management of human resources can make significant contributions to organizational performance and that human resource related issues are central to the creation of sustainable competitive advantage.

These positive outcomes are also amongst the drivers of E-HRM adoption in MNC subsidiaries. According to Burbach and Royle [23], E-HRM is particularly important in an international context, as the largest organizations operate across various countries and contexts. Without the use of technology, the integration of HR information and the streamlining of HR policies and procedures across geographically dispersed subsidiaries would be next to impossible [23]. However, academic involvement in E-HRM started relatively late and, to a certain extent, is still trying to catch up with practice [24].

2. Research gap

E-HRM is relatively new research streams [6]. Similarly, Ruel et al. [24] also highlighted that the topic of E-HRM is certainly not becoming obsolete, and its full potential is still anticipated, and therefore academic involvement in the topic needs to grow. Ruel et al. [24] further stressed that research on E-HRM is still in its "youth-phase" and it is still underneath theorized [25]. In addition, Stone et al. [26] and Gregeby and Hugosson [27] also highlighted that despite the widespread use of E-HRM systems, little research has focused on such issues as the degree to which they are accepted by users.

In their review of the literature, Marler and Fisher [6] conclude that almost a third of the studies they reviewed were exploratory and lacking specific theoretical foundation to guide the E-HRM research. In addition to this, Marler and Fisher [6] again emphasized that it is important to expand the literature on EHRM and its value by using more empirical techniques. Their argument is in line with Bondarouk and Ruel [28] and Strohmeier [7] stated that past research in the field of E-HRM has been criticized for a general lack of theory.

In terms of scholarly activity, however, surprisingly, little research has been conducted on the impact of IT on HR [29]. Schalk et al. [30] mentioned that limited empirical evidence on strategic considerations are taken into account in the decision-making process around the implementation of E-HRM as it is a precondition for E-HRM to be successfully used for strategic purposes.

Previous studies have identified various factors and outcomes in their E-HRM research such as job relevance, ease of use, usefulness, attitude, trust, usability, quality, user support, preferred HR role, HRM effectiveness, appreciation of E-HRM applications, and language standardization. However, these studies have focused on users' initial adoption and usage, and little research attention has been devoted to investigating the post-adoption usage of E-HRM by utilizing TCT [31] given the vital role of users' continuance usage is critical to the success of E-HRM service providers. Moreover, there is a dearth of research on factors that affect E-HRM continuance usage intention.

Most of the studies on E-HRM were conducted by various researchers in developed countries (i.e. USA and Europe). Limited studies from Malaysia, a country that is environmentally, economically, and technologically far different from the developed countries. The big gap in market environment and management mechanisms between developed countries and developing country (i.e. Malaysia), may lead to different findings on E-HRM [32].

Furthermore, E-HRM research with an international perspective is scarce [33]. Geffen [33] adapt this issue by referring to IS research, confirmed the 'richness' of IS research in MNCs and showed that E-HRM in MNC research has almost only focused on the post-implementation issues. While, Burbach and Royle [34] indicated that E-HRM adaptation in MNC subsidiaries is affected by the institutional contexts, political and power relationship within which the organisation operates. However, continuance usage intention should be examined further to understand the willingness of the organizations to use continuously after adaptation or post-implementation issue occurred.

In an attempt to respond to the gap in the literature, this study examines the factors that affect E-HRM users' continuance usage intention by adopting a well-established conceptual model. We propose that E-HRM continuance usage intention is not only affected by satisfaction and attitude, but also other factors such as confirmation, perceived ease of use, and perceived usefulness. The resulting model is then useful in explaining the possibility to continue users' current experience with the E-HRM in the future. Present study contributes theoretically and empirically to our understanding of determinants of continued usage intention of E-HRM in Multinational Corporations (MNCs) setting.

3. Theoretical gap

E-HRM topic is still immature research field and more theory-driven and evidence-based E-HRM studies is needed [35]. Previous studies have drawn on information systems (IS) theories such as Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), and Technology of Planned Behaviour (TPB) in E-HRM research [24], [29], [36 - 41]. Technology Continuance Theory (TCT) is chosen as a theory that underlying the research model of E-HRM in this paper.

TCT is introduced by Liao et al., [42] is a new theory on predicting the users' continuance intention towards a technology. It is a combination of three most used theories in the research of Technology and information system namely Technology Acceptance Model (TAM) by Davis [43], Expectation Confirmation Model (ECM) by Bhattacherjee [44], and Cognitive Model (COG) by Oliver [45]. TCT is a three-level model with IS continuance intention as the final dependent variable. TCT includes two central constructs: satisfaction and attitude, and three first level antecedents: confirmation, perceived usefulness, and perceived ease of use. All of the hypotheses proposed in TAM, ECM, and COG are included in TCT [42]. Liao et al. [42] further highlighted that the TCT represents a substantial improvement over the TAM, ECM and COG models in terms of both breadth of applicability and explanatory power.

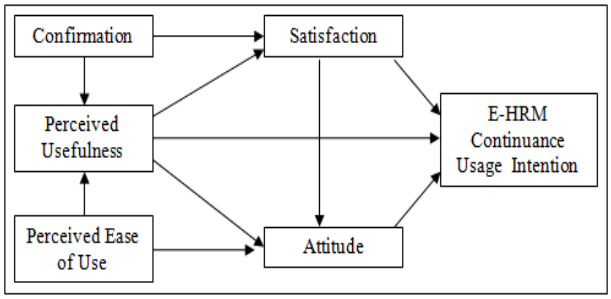

Fig. 1: Technology Continuance Theory (TCT) by Liao Et Al. [42].

The paper is structured as follows: following the introduction is brief introduction of theory. The subsequent sections establish the research hypotheses based on extensive review of the literature and proposed the conceptual model. Following a description of the study's method, the findings are presented and discussed. Present study is concluded with a discussion of the study's theoretical and practical implications as well as research limitations and propositions for future research.

4. Literature review

4.1. Electronic human resource management (E-HRM)

The term of E-HRM was first used in the late 1990's when e-commerce was sweeping the business world [8]. E-HRM can be specifically defined as administrative support of the HR function in organizations by using internet technology [37] and increases the working conditions as well performance of the employees [46]. There are three tiers of E-HRM: 1) operational E-HRM is related to administrative functions such as payroll and employee personal data; 2) relational E-HRM is related to supporting business processes by means of recruitment, training, performance management and so forth; 3) transformational E-HRM is related to strategic HR activities such as knowledge management and strategic reorientation [47].

The adoption of E-HRM in organization has been argued on three main aspects. First, E-HRM can improve efficiency by reducing HR transaction costs and headcount. Second, E-HRM can replace physical capability by using digital resources in which HR information can be used flexibly on unlimited occasions requires little or no marginal cost. Lastly, the effective use of integrated E-HRM systems can transform the HR business model by freeing up the HR

executive to provide strategic value to the business that they previously unable to do [29], [46].

4.2. Continuance usage intention of IS

Continuance usage intention is defined as ones intention to continue using or long term usage intention of a technology [48]. Continuance intention is an ex post reconfirmation of the initial adoption decision [49], whereas technology acceptance does not guarantee continued use [50]. Continuance intention at the user level is an important behaviour that has been investigated in various IS studies [51, 52). Panos and Bellou [53] concluded that HRM role and IT users acceptance is major influencer in determination of EHRM outcomes rather than setting of EHRM goals.

Recent research on IS continuance have been explored on various determinants. Zhou [54] found that performance expectancy, trust and flow affect continuance usage. Gao and Bai [55] reported that flow, perceived usefulness and satisfaction determine continuance intention. Chang et al. [56] discovered that utilitarian outcome expectations, hedonic outcome expectations, peer influence, external influence, critical mass, and subjective norms have a significant positive effect on continuance intention. In addition, flow positively moderates the relationship between hedonic and utilitarian outcome expectations and continuance intention. Santhanamery and Ramayah [57] proposed a model to examine the relationship between Big Five Personality Traits and perceived usefulness on E-filing continuance usage intentions.

Cao et al. [58] used Maslow hierarchy of needs theory as the theoretical base and reported that fulfilment of self-actualization needs has a significant impact on continuance intention; however, the direct impact of fulfilment of social needs on continuance intention is not significant but fully mediated by satisfaction. Chang [59] demonstrated that perceived value and satisfaction determines users' continuance intentions of e-learning systems in academic libraries. Zhou [54] indicated that both perspectives of technological perceptions and flow experience have effects on satisfaction, which in turn affects continuance usage. Chen and Chou [60] found that satisfaction is a strong predictor of the continuance intentions of B2C online shopping consumers.

5. Research model and hypotheses development

The review of the literature reveals some gaps that have been taken into account in present study. Building upon TCT, a conceptual model has been developed (see Fig. 2) and there were 10 hypotheses generated from the variables proposed in Fig. 1.

5.1. Perceived ease of use

Perceived ease of use refers to "the degree to which a person believes that using particular system would be free of effort" [61]. TAM replaces determinants of attitude of TRA by perceived ease of use and perceived usefulness [62]. Perceived usefulness is also influenced by perceived ease of use because of other things are equal; the system (technology) could be more useful as long as it is easier [63]. Many researchers concluded, both theoretically and empirically, that the easy use of technology will lead to peoples' perception of usefulness in various IT contexts [61], [64-72]. Besides, Yusliza and Ramayah [32], [73], [74] have confirmed the relationship between these two variables in E-HRM context. When users find it easy to use E-HRM technology, they will consider this technology more useful. Therefore, perceived ease of use has an essential effect on perceived usefulness. Thus, the following hypothesis is derived from the arguments:

H1: Perceived ease of use has a direct positive impact on perceived usefulness.

Several studies have demonstrated that there is a positive relationship between perceived ease of use and attitude [67], [69], [70], [75], particularly in E-HRM context [32], [73], [74]. For instance, Morosan [69] found a positive relationship between air travellers' perceived ease of use their mobile phones and their attitudes towards using mobile phones for purchasing ancillary air travel services. Similarly, Wu and Chen [75] found the positive relationship between perceived ease of use and attitude towards using massive open online courses and intense effect is found on attitude. Moreover, in E-HRM context, Yusliza and Ramayah [74] discovered that perceived ease of use is positively related to attitude towards using E-HRM among 154 HR professionals. Hence, from arguments it is hypothesize that:

H2: Perceived ease of use has a direct positive impact on attitude.

5.2. Perceived usefulness

Perceived usefulness refers to "the users' subjective assessment of whether using the new technology will be beneficial to personal and organizational well-being" [71]. Bhattachejee [48] uses the TAM to show that perceived usefulness is one of the primary motivators of IS acceptance and that it can also influence subsequent continuance decisions. Therefore, the expectation-confirmation based IS continuance model proposes that perceived usefulness has a direct impact on satisfaction. Bukhari et al. [65] proposed perceived usefulness of the web site positively influences the e-satisfaction with the airline web site.

In a study to develop a novel integrated model that characterizes e-learning continuance intention, found that perceived usefulness was the major antecedent of user satisfaction [76]. Besides them, many researchers have confirmed the positive relationship between perceived usefulness and satisfaction [32], [42], [50], [51], [55], [77], [78], [79] Based on findings presented in these earlier works, this study thus proposes the following hypotheses in E-HRM context:

H3: Perceived usefulness has a direct positive impact on satisfaction.

Behavioural intention is jointly determined by attitude and perceived usefulness. Perceived usefulness and perceived ease of use are considered as two external variables to influence user's technology acceptance and these two factors will affect users' attitude [80]. It has been proven by various studies that attitude was the most contributors for perceived usefulness towards IS usage [62, 66, 67, 69, 70, 71, 75, 76, 81]. Besides, Yusliza and Ramayah [32], [73], [74] have tested the relationship between these two variables in E-HRM context and discovered a significant positive relationship. Therefore, the following association is hypothesized:

H4: Perceived usefulness has a direct positive impact on attitude.

In the classic IT continuance intention research model – ECM [44], perceived usefulness is validated to positively affect IT continuance intention. As highlighted by Ho [76], the TAM proposes that as the degree to which a user believes an IS is helpful for his or her job increases, the degree of positivity toward continuance increases. When exploring continuance intention of customers based on their IT-related capabilities, social cognitive factor, and performance, the research findings showed that the most influential determinant of repurchase intention is perceived usefulness [75, 82]. Perceived usefulness has been found an important determinant of continuance intention [50, 51, 54, 55, 68, 76, 79, 83, 84, 85, 86]. In line with the literature, we hypothesize the same relationship for E-HRM users:

H5: Perceived usefulness has a direct positive impact on E-HRM continuance usage intentions.

5.3. Confirmation

Bhattacherjee [44] regards that confirmation is helpful in improving the rate of users' perceived usefulness. Cognitive dissonance theory also assumes users may have cognitive inconsistency or anxiety when disconfirmation of their pre-acceptance perception of perceived usefulness exists [76]. Ho [76] further argued that the rationale is that users typically attempt to adjust their perception of pre-acceptance usefulness, such that it is consistent with post-acceptance reality that is, confirmation enhances perceived usefulness and reduces the occurrence of disconfirmation. Some recent studies have found that confirmation have a positive influence on perceived

usefulness [76, 79, 82, 85, 86, 87, 88, 89]. Recently, Ambalov [90] conducted a study using H-S meta analytics procedure of seventeen years of literature on IT continuance (ECM) and concluded that positive association between confirmation and perceived usefulness. Thus, it can be summarized that:
H6: Confirmation has a direct positive impact on perceived usefulness.
Confirmation is a cognitive belief defined as the extent to which a user's expectation of the performance of an IS realized during actual IS use [43]. The relationship between confirmation and satisfaction has been developed in Bhattacherjee's [44] study where an Expectation Conformation Model (ECM) was proposed based on continued use rather than initial adoption in an IS discipline. Users' confirmation of expectations suggests that the users obtained expected benefits through their usage experiences with online service, and this leads to a positive effect on users' satisfaction with online service [79]. Many studies have validated the association between confirmation and user satisfaction in different contexts [58], [76], [82], [85 - 88], [90 - 92].
According to a study carried out predict a user's continuance behaviour toward MDS based on ECM and TPB, it was found that confirmation of expectations is positively associated with user satisfaction [93]. When exploring continuance intention of customers based on their IT-related capabilities, social cognitive factor, and performance, the research findings showed that the most important influential factor of satisfaction is confirmation. Thus, it can be summarized that:
H7: Confirmation has a direct positive impact on satisfaction.

5.4. Satisfaction

Satisfaction refers to the sum of one's feelings and attitudes toward a variety of factors related to the delivery of information products and services [94]. It is linked to user perception, and a user's pleasurable fulfilment is connected to their post-usage intention [95]. In relation to satisfaction and attitude, several studies have found that satisfied users is associated with forming positive attitude towards using the technology [32], [66], [72], [76], [96], [97]. Hence, we infer that user-perceived satisfaction with E-HRM technology will positively affect attitude. Hence, our next hypothesis is:
H8: Satisfaction has a direct positive impact on attitude.
User satisfaction with IS has been seen as one of the most important issues in IS research and it has been linked to the continued use of IS [44]. Due to its importance, organizations often invest significant amounts of financial and HR in the measurement and analysis of user satisfaction while simultaneously trying to improve the level of satisfaction [98]. According to Bhattacherjee [44], satisfaction with IS use is the strongest predictor of users' continuance intention. Negative word-of-mouth initiated by users is generally more persuasive than most positive effects and it may trigger users' discontinuance [44]. Satisfaction also may be the key to explaining the IS acceptance-discontinuance anomaly which is user discontinuance of IS after its initial acceptance. IS continuance intention is determined primarily by their satisfaction with prior IS use [44]. Numerous studies have found a positive relationship between satisfaction and continuance intention in different context [50, 51, 55, 58, 72, 76, 78, 79, 82, 86, 91] particularly to the users of E-HRM systems. Thus, we make the following hypothesis:
H9: Satisfaction has a direct positive impact on E-HRM continuance usage intentions.

5.5. Attitude

In this study attitude was defined as user preferences when using E-HRM. Past research has demonstrated that attitude is one of the factors influencing user intentions to continue adopt information systems [76, 99]. For example, Chiang [99] discovered that attitude has a significant strong effect on intention to continue to use a given social networking site. Ho [76] also found that user-perceived attitude toward using an e-learning platform has a significant influence on continuance intention and other several studies also confirmed the positive association between them [72, 100, 101, 102]. Therefore, the following hypothesis was proposed:
H10: Attitude has a direct positive impact on E-HRM continuance usage intentions.

6. Conceptual research framework

The review of the literature and the research in E-HRM reveals some gaps that have been taken into account in present study. In summary, the research model (Fig. 2) proposes that continuance usage intention towards E-HRM is the combined effect of perceived ease of use, perceived usefulness, confirmation, satisfaction, and attitude. This model adopted the original TAM's [103] perceived usefulness, perceived ease of use, attitude, and intention in causal relationship. Confirmation and satisfaction variables are derived from ECM [44].

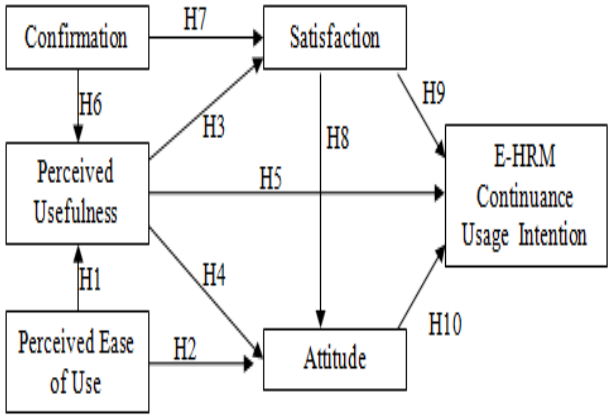

Fig. 2: Conceptual measurement model for the study.

7. Methodology

In this section we discuss sample and data collection procedures and measurement of variables used in the study as well as the statistical tests used to evaluate the hypotheses.

7.1. Sampling and data collection

Data were collected from E-HRM users within various multinational companies located in the state of Penang, Malaysia. Therefore, the unit of analysis in our research is the individual user of E-HRM. The questionnaire survey was the main form of data collection. A filter question was included at the beginning of the questionnaire. The filter question was ‘is your company currently used E-HRM? Respondents who answered ‘yes’ to this filter question were used in data analysis. The questionnaires were distributed to all E-HRM users from different job levels and functions within the organization. They were distributed personally by the researcher with the help from an officer/coordinator from either HR or administration department within the organization. A covering letter explaining the purpose of this study was attached together, assuring them of the confidentiality of their responses, and instructing them to complete the questions, seal and return the completed questionnaires using the attached envelope. Out of the 300 questionnaires distributed to E-HRM users in this organization, 193 usable questionnaires were returned, yielding a response rate of 64.3 percent, which is considered acceptable.

7.2. Sample size

A rule of thumb for the required sample size in PLS is that the sample should be at least ten times the number of independent variables in the most complicated multiple regression in the model [104]. Based on research model, the total number of independent variables are [5], thus the minimum sample size for this study is 50 observa-

tions. The sample size in this study (193 responses) meets the minimum sample size requirement. Hence, it shows the representativeness and validity of the sample.

7.3. Variable measurements

Six constructs were measured in this study: perceived ease of use, perceived usefulness, satisfaction, confirmation, attitude and E-HRM continuance usage intention. For each construct, a seven-point Likert scale, ranging from strongly disagree (1) to strongly agree (7) was adapted from previous studies. The sources of items are shown in Table 1.

8. Analysis of data and results

We analyzed the data using SmartPLS version 2.0.M3 [105] in two stages related to the measurement model and the structural model. The SmartPLS structural equation modeling technique is recommended when the model is complex, the sample size is quite small, or assumptions of normality are not satisfied [106]. For our research, the model was complex.

8.1. Characteristics of samples

There were 119 male and 74 female respondents. The average age and working experience with current organization of the sample was 34 years old and 8 years, respectively. They are dominantly Chinese (40.9%), followed by Indian (29.0%), Malay (28.9%), and others (1.6%). With regard to marital status, 57 percent of the respondents were married, 42 percent were single, and 1 percent was others. Out of 193 respondents, 106 (over 50.0%) had achieved a bachelor degree. Users from two types of multinational companies were represented in the sample (i.e. manufacturing, n = 135; service, n = 58).

Table 1: Variables and Measures

Construct	Items	Source
Perceived Usefulness	Using E-HRM would increase my performance in handling HR activities. Using E-HRM in my job would increase productivity in handling HR activities. Using E-HRM would enhance my effectiveness in handling HR activities. I would find E-HRM useful in handling HR activities.	[107]
Perceived Ease of Use	Learning how to apply E-HRM would be easy for me. My interaction with E-HRM would be clear and understandable. I would find E-HRM easy to interact with. It would be easy for me to become skilful with E-HRM. I would find E-HRM easy to use.	[107]
Attitude towards E-HRM	Using E-HRM would be a good idea. I like working with E-HRM. In my opinion, it is desirable to use the E-HRM. Using E-HRM is a pleasant experience. Using E-HRM is a wise idea.	[107]
Confirmation	My experience with using E-HRM was better than what I expected. The service level provided by E-HRM was better than what I expected. Overall, most of my expectations from using E-HRM were confirmed.	[44]
Satisfaction	I was very satisfied with my overall E-HRM used. I was very pleased with my overall E-HRM used. I was very contended with my overall E-HRM used. I was absolutely delighted with my overall E-HRM used.	[45]
E-HRM Continuance Usage Intention	I intend to continue using E-HRM rather than discontinue its use. My intentions are to continue using E-HRM than use any alternative means If I could, I would like to discontinue my use of E-HRM.	[44]

8.2. Measurement model

Following recommended two-stage analytical procedures [108] confirmatory factor analysis was first conducted to assess the measurement model, and then the structural relationships were examined.

8.3. Reliability and validity

To validate our measurement model, three types of validity were examined: content validity, convergent validity, and discriminate validity. Content validity was established by ensuring that the measurement items are consistent with the extant literature [109]. This was done by both interviewing E-HRM users and pilot-testing the instrument.

Convergent validity is the degree to which multiple items to measure the same concept are in agreement. We examined factor loadings, composite reliability (CR) and average variance extracted (AVE) from the measures [110]. As recommended by Chin et al. [108], 0.7 refers to the reliability threshold of a construct. As indicated in Table 2, CR values of the construct range from 0.915 to 0.969 which exceeded the recommended value of 0.7. For AVE, a score of 0.5 indicates acceptability [111]. Table 2 shows that AVEs of the construct range from 0.803 to 0.887, indicating the acceptability of AVE.

Table 2: Measurement Model

Construct	Items	Loadings	AVE	CR
Attitude	ATT1	0.915	0.823	0.959
	ATT2	0.916		
	ATT3	0.921		
	ATT4	0.894		
	ATT5	0.890		
Confirmation	CONF1	0.905	0.803	0.924
	CONF2	0.934		
	CONF3	0.846		
Perceived Ease of Use	PEU1	0.873	0.810	0.955
	PEU2	0.926		
	PEU3	0.903		
	PEU4	0.904		
	PEU5	0.893		
Perceived Usefulness	PU1	0.905	0.862	0.961
	PU2	0.936		
	PU3	0.947		
	PU4	0.925		
Satisfaction	SAT 1	0.940	0.887	0.969
	SAT 2	0.951		
	SAT 3	0.951		
	SAT 4	0.924		
Continuance Intention	CON1	0.943	0.843	0.915
	CON2	0.893		

Note: CON3 Was Deleted Due to Low Loading

AVE = Average Variance Extracted, CR = Composite Reliability

Finally, discriminant validity of the instrument was verified by looking at the square root of AVE as recommended by Fornell and Larcker [111]. Discriminant validity of the measures is the degree to which items differentiate among constructs or measure distinct concepts. The discriminant validity is confirmed by the results shown in Table 4: as mentioned by Chou [109], the square root of AVE for each construct is greater than the level of correlations involving the construct. All inter-construct correlations are shown as elements off the diagonal of the matrix in Table 4, while the square roots of AVE are shown in the diagonal elements. All the square roots of AVE should be larger than off-diagonal elements in the same row and column [113]. In total, the measurement model demonstrated adequate convergent validity and discriminant validity.

Table 3: Cross Loadings

Items	Attitude	Confirmation	Continuance Intention	Perceived Ease of Use	Satisfaction	Perceived Usefulness
ATT1	0.915	0.449	0.589	0.614	0.466	0.569
ATT2	0.916	0.496	0.605	0.608	0.479	0.553
ATT3	0.921	0.477	0.588	0.656	0.458	0.579
ATT4	0.894	0.546	0.556	0.647	0.518	0.500
ATT5	0.890	0.460	0.491	0.613	0.435	0.535
CON1	0.638	0.613	0.943	0.620	0.730	0.612
CON2	0.492	0.392	0.893	0.449	0.530	0.448
CONF1	0.485	0.905	0.474	0.507	0.567	0.556
CONF2	0.460	0.934	0.518	0.476	0.646	0.425
CONF3	0.492	0.846	0.521	0.481	0.671	0.420
PEU1	0.544	0.442	0.529	0.873	0.475	0.579
PEU2	0.640	0.499	0.523	0.926	0.494	0.635
PEU3	0.676	0.467	0.520	0.903	0.432	0.605
PEU4	0.609	0.478	0.552	0.904	0.474	0.557
PEU5	0.635	0.567	0.552	0.893	0.551	0.564
PU1	0.451	0.457	0.491	0.535	0.453	0.905
PU2	0.530	0.496	0.519	0.575	0.474	0.936
PU3	0.601	0.483	0.590	0.662	0.490	0.947
PU4	0.639	0.501	0.575	0.644	0.482	0.925
SAT1	0.467	0.633	0.658	0.467	0.940	0.472
SAT2	0.521	0.655	0.682	0.553	0.951	0.507
SAT3	0.500	0.663	0.655	0.496	0.951	0.487
SAT4	0.468	0.691	0.640	0.509	0.924	0.462

Note: Cross Loadings Should Be Lower By at Least 0.1 (Hair Et Al., 2014)

Table 4: Discriminant Validity of Constructs

	1	2	3	4	5	6
1. Attitude	0.907					
2. Confirmation	0.535	0.896				
3. E-HRM Continuance Intention	0.625	0.563	0.918			
4. Perceived Ease of Use	0.692	0.546	0.594	0.900		
5. Satisfaction	0.520	0.702	0.700	0.538	0.942	
6. Perceived Usefulness	0.604	0.522	0.588	0.654	0.512	0.928

Note: The Diagonal Values Are Square Root of the AVE While the Off-Diagonals are Correlations

8.4. Structural model

With an adequate measurement model, the proposed hypotheses were tested with PLS. Our findings are shown in Fig. 3 and summarized in Table 5.

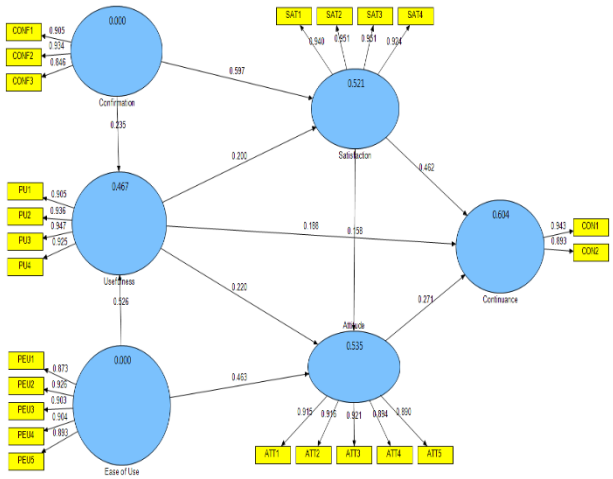

Fig. 3: Results of Structural Model.

The structural model to confirm the hypothesized relationships among the studied constructs was then built and examined. All 10 hypotheses were all statistically significant with R^2 values of 0.47 (Perceived Usefulness), 0.521 (Satisfaction), 0.535 (Attitude) and 0.604 (Continuance) indicates good explanatory power of the model [112]. Interestingly the result indicates that confirmation (H7) was the strongest predictor to satisfaction. Meanwhile perceived ease of use (H1) was the strongest predictor to perceived usefulness. Meanwhile, perceived ease of use (H2) was the strongest predictor to attitude and satisfaction (H9) was the strongest predictor to E-HRM continuance usage intention.

Table 5: Results from the Structural Model (Hypotheses Testing)

Hypothesis		Beta	Std Error	t-value	Decision
H1	Perceived Ease of Use → Perceived Usefulness	0.526	0.063	8.354**	Supported
H2	Perceived Ease of Use →Attitude	0.463	0.073	6.313**	Supported
H3	Perceived Usefulness →Satisfaction	0.200	0.078	2.581**	Supported
H4	Perceived Usefulness →Attitude	0.220	0.094	2.344**	Supported
H5	Perceived Usefulness →E-HRM Continuance Usage Intention	0.188	0.067	2.802**	Supported
H6	Confirmation →Perceived Usefulness	0.235	0.077	3.039**	Supported
H7	Confirmation →Satisfaction	0.597	0.076	7.892**	Supported
H8	Satisfaction →Attitude	0.158	0.081	1.943*	Supported
H9	Satisfaction →E-HRM Continuance Usage Intention	0.462	0.052	8.955**	Supported
H10	Attitude →E-HRM Continuance Usage Intention	0.271	0.068	4.011**	Supported

**P< 0.01, *P < 0.05.

9. Discussion

Some theoretical and practical contributions are possible from this research. This study contributes to an improved understanding of the factors that influence E-HRM users' continuance intention of using E-HRM. First, many previous E-HRM research explored on information systems theories such as the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), and Technology of Planned Behavior (TPB) [24], [29], [36 - 41]. However, there is little empirical evidence on factors influencing continuance intention of E-HRM [31]. The present research model utilized the TCT and explored continuance intention of users in the context of E-HRM and this research is different from Liao et al.'s [114] research that examined in the context of e-learning.

As shown in Fig. 3, all hypotheses are supported. Confirmation and perceived ease of use affect perceived usefulness. Confirmation and perceived usefulness have significant positive influence on satisfaction. Satisfaction, perceived usefulness, and perceived ease of use affect attitude. Satisfaction, perceived usefulness, and attitude have a positive relationship with continuance usage intention of E-HRM. The details of the discussion will be discussed below.

9.1. Perceived ease of use and confirmation on perceived usefulness

Research findings of this study confirm that perceived ease of use and confirmation were positively related to perceived usefulness. Hypotheses 1 and 6 are thus accepted. The result of the current study support prior research finding between the perceived ease of use and perceived usefulness of IS [61], [64 - 72] and also consistent with previous research on E-HRM context [32], [73], [74]. Regarding to confirmation and perceived usefulness, the finding is in line with the findings from previous literature [76, 79, 82, 86, 87, 89]. The value of perceived ease of use as a predictor of perceived usefulness in this context is shown in its ability to enhance perceived value by the E-HRM users. Users tend to perform a task on a system that is easy to access and use, rather than on a system that demands great mental effort to operate. Confirmation successfully predicts perceived usefulness. Users will have high initial usefulness perceptions of a new IS because they are very sure what to expect from its use.

9.2. Perceived usefulness and confirmation on satisfaction

Both perceived usefulness and confirmation have been found to play significant positive influence on satisfaction as expected. Thus, Hypotheses 3 and 7 are accepted. First, this finding seems to support the findings of previous studies [32], [42], [44], [50], [51], [55], [77], [79], [78], [85], [90] that perceived usefulness directly influence user satisfaction. The more useful an E-HRM is, the more satisfactory it is. Confirmation positively affects satisfaction, which indicates that users' satisfaction with E-HRM typically comes from adjustments of their expectations. This result is consistent with previous IS research on the relationship between confirmation and satisfaction [58], [76], [79], [82], [86 – 88], [91], [92].

9.3. Perceived ease of use, perceived usefulness, and satisfaction on attitude

Hypotheses 2, 4, and 8 were also supported in this study. We could thus induce that perceived ease of use, perceived usefulness, and satisfaction seems to remain as a critical determinant of attitude towards E-HRM. Such findings confirm the discoveries in recent findings investigating between perceived ease of use and attitude [67], [69 - 71], [75], particularly in E-HRM context [32], [73], [74]. Moreover, present findings also consistent with previous findings on the relationship between perceived usefulness and attitude [62], [66 - 71], [75], [76], [81] in particular E-HRM context [32], 73, 74]. Present findings also support the relationship between satisfaction and attitude [32], [66], [72], [76], [96], [97]. Specifically, once a user perceives an E-HRM as easy to use, he or she will develop a positive attitude towards the use of E-HRM. Thus, perceived ease of use affects the attitude towards using E-HRM. The result also indicated that E-HRM users are more likely to have a favourable attitude toward using HR technology if they perceived that using this technology is not complicated or they perceived it as a useful tool. With regards to satisfaction and attitude, the finding indicated that the more satisfied users are when they use E-HRM technology; the more likely they will have a favourable attitude towards them.

9.4. Perceived usefulness, satisfaction, and attitude on e-HRM continuance usage intention

With regard to the effects of perceived usefulness, satisfaction, and attitude on E-HRM continuance usage intention, analysis showed that all three constructs are positively related to E-HRM continuance usage intention. Thus, Hypotheses 5, 9, and 10 are supported. For the relationship between perceived usefulness and E-HRM continuance usage intention, we could thus induce that perceived usefulness of E-HRM seems to remain as a critical determinant of E-HRM user continuance usage intention. Such findings confirm the discoveries in recent studies investigating the relationship between these variables (Al-Maghrabi et al., 2011; Carillo et al., 2017; Chen et al., 2010; Gao & Bai, 2014; Ho, 2010; Kim et al., 2014; Lu, 2014; Tang et al., 2014; Wang et al., 2012; Yen & Tsai, 2011). We could infer that E-HRM users are more rational decision makers, when give the option to continue with E-HRM usage. E-HRM users are looking for positive benefit to reinforce their past and existing adoption decision to use this technology and estimating the practical value to continue. This is captured by the perceived usefulness belief. Besides, this study found that users' satisfaction significantly and positively influence continuance usage intention. Many scholars (e.g. Ambalov, 2018; Cao et al., 2013; Chen et al., 2009, 2010; Gao & Bai, 2014; Ho, 2010; Kim et al., 2014; Shiau & Luo, 2013; Tang et al., 2014; Wang et al., 2012; Yen & Tsai, 2011) reported that satisfaction is a strong determinant of continuance usage intention in IS research. This result implies that investment in user satisfaction benefits the whole organizations in the form of increased

long-term usage intention. Lastly, attitude is found to have a significantly effect on intention to continue to use E-HRM, which is consistent with other studies that examine the relationship between attitude and IS continuance usage intention (Basak et al., 2015; Chiang, 2013; Ho, 2010).

10. Theoretical implications

The theoretical contribution of this study is the applicability of TCT in predicting E-HRM continuance usage intention among the users. It also contributes by filling the gap in the existing body of knowledge highlighted by previous researchers in terms of limited research and underneath theorized (Bondarouk et al., 2017; Gregeby & Hugosson, 2017; Marler & Fisher, 2013; Marler & Parry, 2016; Ruel et al., 2007; Stone et al., 2016). Our findings indicate that further theoretical and empirical assessments are needed in future research to improve the applicability of TCT in using E-HRM technology, specifically in examining other factors such as HRM variables, competitive advantage, and E-HRM acceptance behaviour.

11. Practical implications

There are several practical implications that can be drawn from the result of present study. In order to make users continue the usage of E-HRM in their organization, management shall look into how to make it look useful, easy to use for the employees. Written manuals or diagrams can be given to coach them on the application of E-HRM. Apart from that, demo sessions shall be arranged for the employees to feel satisfied towards E-HRM. This shall change the user's attitude towards the acceptance and continuance usage of the system. Also, more applications shall be included in the E-HRM software so that it adds more value and users finds it more useful.
Apart from that, the users shall be given a time frame to use the system in a test area so they gain the confirmation towards the usage of it. Also, it is important to minimize the potential errors by the system to increase the confirmation of the user's usage.

12. Limitations

Prior discussing the implications of our findings, we acknowledge the limitations of this study. Thus, its results should be interpreted with caution. A first limitation is related to the location of the study, which is conducted in Penang. Thus, present study's results need to be generalized to other region or countries. Second, the study used a quantitative approach design, which may not reflect an in-depth investigation on the subject of interest. Third, the accuracy of the findings may depend on the respondent's understanding about the usage and usefulness of the E-HRM system. This is because the education and information regarding it in individual organizations may vary. The data may be more accurate if the respondents are from companies which strongly emphasizes on the usage of E-HRM. Next, the cross-sectional character of the data does not allow testing for causality of the proposed relationships.

13. Future research direction

Despite these limitations, this research has made an important contribution to the field of E-HRM research through a large, international study of the use of E-HRM within a sound theoretical framework. The findings are noteworthy and provide challenges for future research and cross-validation in different settings. Clearly, additional research is required to investigate the factors influencing E-HRM users' continuance usage intention. First of all, future work can overcome limitations of the present study in terms of the number of the respondents. Increasing the number of the respondents may help in generalizing the findings. Furthermore, future research should look into SMEs in Malaysia as this study has majority of its respondents from large manufacturing and service industries. A comparison between manufacturing and service industry can also be an interesting area to look into. It can also be interesting to look into other variables such as sustainable competitive advantage and also performance of E-HRM. Lastly, we would also like to suggest future research to study if perceived risk can be a constraint for continuance usage intention towards E-HRM.

14. Conclusion

The digitization world has forced the practitioners to adopt EHRM practices as their effects are exposed in shape of outcomes in the organizations and there is no choice to stay immune to these changes.
In the new digital age, E-HRM has now become an important practice and organizations are exposed to the effects of information technology changes and there is no choice to stay immune to these changes. IT is responsible for dramatic changes through such revolutionary concepts like E-HRM. Finding ways to increase E-HRM continuance usage intention is thus important for the continued rapid growth of organizational change.
This study contributes and builds on the existing studies on technology acceptance by presenting the Malaysian perspective and followed the recommendations from previous studies that have highlighted the need to validate the TCT with different contexts and cultures to enhance its generalizability.
Present study concludes that end users attitude, perceived usefulness and satisfaction determines the continuance usage of the E-HRM system. Although there are some limitations, it is hoped that the first step taken in studying E-HRM continuance usage intention is significant for further justification and we believe that this study provides both an empirical foundation and theoretical framework for moving ahead.

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