

## The Structural Relationship Between Organisational-Information System Related Support, Technology Self-Efficacy, And End-User Satisfaction With E-HRM

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### Abstract

The study investigated the structural relationships between organisational information system (IS)-related support and end-user satisfaction with electronic human resource management (E-HRM) in government agencies in Malaysia, called human resource management information system (HRMIS). The moderating effect of technology self-efficacy on the relationships was also examined. A purposive sampling technique specifically judgment sampling was used to recruit participants in 14 state governments and ministries. To collect data, 990 questionnaires were distributed, of which 490 were used for data analysis. The results showed that of four dimensions of organisational IS-related support, only literacy support, technical support, and technology involvement support had significant and positive relationships with end-user satisfaction with HRMIS. Innovation support did not show any significant contribution. Unexpectedly, technology self-efficacy did not demonstrate any moderating effect, suggesting that organisational IS-related support is more crucial than prior computer skill to ensure the effective implementation of HRMIS in government agencies in Malaysia. The theoretical and managerial implications of the results are discussed.

**Keywords:** Organisational support; HRMIS, EHRM; End-user satisfaction; And Malaysia.



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### 1. Introduction

The market penetration of various technology applications has signalled the transformation of work practices by using information communication technologies (ICTs). In human resource management (HRM), the application of technology is called electronic human resource management (E-HRM). With E-HRM, data can be more efficiently processed into useful information. More importantly, a number of organisational objectives can be fulfilled such as enhanced HRM strategic paradigm, cost savings, and better services to clients (Alwis, 2010; Lepak and Snell, 1998; Ruel *et al.*, 2007; Stone and Dulebohn, 2013). Furthermore, E-HRM assists human resource (HR) specialists and managers to deal with the complexity of managing human resources, support decision makers by providing fast quality information, facilitate participation in internal consultancy activities, and accelerate the adaptability of organisations to environmental changes (Hussain *et al.*, 2007; Martinsons, 1994).

However, despite the purported benefits, the full potential of HRMIS or E-HRM is yet to be achieved. One of the indicators to consistently measure the effectiveness of the application of a system is end-user satisfaction (Gudigantala *et al.*, 2011; Igbaria and Nachman, 1990; Sabherwal *et al.*, 2006). Various factors have been identified to influence end-user satisfaction, and organisational IS-support was found to be a significant contributor (Lee *et al.*, 2006); (McPherson and Ramli, 2004; Sabherwal *et al.*, 2006; Tarafdar *et al.*, 2011a). However, the influence of such support in the HRMIS context is yet to be investigated. Such inquiry is pertinent in a context like the Malaysian government agencies, which are implementing the use of HRIM in stages. The system allows HR managers to analyse, plan, and identify improvement opportunities for the organisation, facilitate the HR activities in getting real-time and online information quickly and easily, ensure consistency in performing specific processes by streamlining HR procedures and policies, facilitate the sharing of accurate and timely information, and enhance employee productivity, motivation, and satisfaction ([www.eghrmis.gov.my](http://www.eghrmis.gov.my)). To ensure that the system fully meets its potential and successful, it is important to consider the end users who are the key beneficiaries of the system.

Understanding what makes end users will be satisfied with the system help system designers to consider important elements to be incorporated into their final design.

Various factors have been assessed to contribute to end-user satisfaction; however, to date, organisational-IS related support seems to have been neglected. This study considered four organisational IS-related support (literacy support, technical support, technology involvement facilitation, and innovation support) to add to the existing literature on end-user satisfaction with HRMIS, particularly in government agencies of Malaysia. This study also examined the moderating effect of technology self-efficacy on the relationships. While organisational support has been found to influence end-user satisfaction of a system in general, we proposed that such support could enhance satisfaction more if the end user him/herself is technologically self-efficacious. By considering the moderation of technology self-efficacy (Malliari *et al.*, 2012); this study enhances the literature by providing empirical evidence of the role of efficacy in end-user satisfaction of HRMIS.

The remainder of the paper is structured as follows. The next section reviews the relevant literature, followed by the hypotheses development. Then, the methodology used in the study is addressed. The next section presents the findings of the study, which are later discussed. The paper concludes by highlighting the theoretical and practical implications of the study, its limitations, and suggestions for future research.

## 2. Literature Review

### 2.1. Electronic Human Resource Management (E-HRM) and Human Resource Management Information System (HRMIS)

Researchers have conceptualised E-HRM in various ways. Ruel H. J. M. *et al.* (2004) defined EHRM as a way of implementing HRM strategies, policies, and practices in organisations through the conscious and directed support of and with the full use of web technology based channels. Strohmeir (2007), defined E-HRM as an application of IT for both networking and supporting at least two individual or collective actors in their shared performing of HRM activities. EHRM is referred to as the administrative support of the human resource function in organisations by using Internet technology (Voermans and Veldhoven, 2007). In this study, E-HRM is defined as “an umbrella term covering all possible integration mechanisms and contents between HRM and technologies aiming at creating value within and across organisations for targeted employees and management” (Bondarouk and Ruel, 2009).

The literature on E-HRM is constantly growing. Studies have looked at the acceptance and effectiveness of EHRM (Bondarouk and Ruel, 2009; Marler and Fisher, 2013; Shilpa and Gopal, 2011); employee satisfaction with EHRM (Gupta and Saxena, 2011; Sanchez and Aguayo, 2007); perception towards EHRM (Gupta and Saxena, 2011); and adoption and usage of EHRM (Long and Ismail, 2011; Panayotopoulou *et al.*, 2010; Troshani *et al.*, 2011).

In Malaysia, HRMIS was introduced in government agencies as an effort to provide public service employees with an integrated system of human resource information management. Importantly, the HRMIS is designed as an integrated technology-enabled system which incorporates global best practices in HRM (Public Service Department, 2010). Specifically, the HRMIS platform aims at centralising human resource data capture, thereby enabling better access to strategic and consolidated HR information for government agencies, contributing significantly towards better planning and management of human capital. HRMIS contains 15 core modules: personal record management, competency assessment, career management, performance management, resourcing, strategy formulation and review, development, employee communications and behavioural management, remuneration, benefit and rewards, establishment data, separation, knowledge base, web publishing, government directory, and executive information system. Interestingly,

To date, a few studies have highlighted HRMIS issues such as technical and systems factors (MAMPU, 2011; McPherson and Ramli, 2004; Mohd Azman, 2011; Noraswati, 2011; Norshita *et al.*, 2010). This study was undertaken to enhance the literature on HRMIS in the Malaysian context.

### 2.2. End-User Satisfaction

The term end-user satisfaction is used interchangeably with user satisfaction, end-user information system satisfaction (EUISS), and end-user computing satisfaction (EUCS). The present study adopted the definition offered by Au *et al.* (2002, p. 453), who viewed end-user satisfaction as “the overall affective and cognitive evaluation of the pleasurable consumption-related fulfilment experienced with IS.” That is, whether or not the end-user is satisfied with the system depends on to what extent the system meets or fails to meet the end-user expectations or needs (Au *et al.*, 2008I). Au *et al.* referred to end-users as non-technical employees who use the system directly and not the technical personnel who design the IS (p. 453).

A review of IS literature indicates that end-user satisfaction has garnered much research interest as it is widely used as a measure of IS success (Gudigantala *et al.*, 2011; Sabherwal *et al.*, 2006). Hence, past studies have focused on identifying the factors that impact end-user satisfaction such as system factors (Dastgir and Mortezaie, 2012; Gudigantala *et al.*, 2011); user situational factors (Au and Ngai, 2008; Tarafdar *et al.*, 2011a); and context-related factors (Rouibah *et al.*, 2009; Sabherwal *et al.*, 2006; Tarafdar *et al.*, 2011b). However, the present study deviated from the past literature by focusing on organisational IS-related factors (i.e. literacy support, technical support, technology involvement facilitation, and innovation support).

### 2.3. Organisational is-Related Support

The present study considered four types of organisational IS-related support. They are literacy support, technical support, technology involvement facilitation, and innovation support. Tarafdar *et al.* (2011a), referred to these types of support as inhibiting mechanisms of stress towards technology and increasing satisfaction with IS. Literacy support refers to the “mechanisms that educate through sharing of IS-related knowledge” (p. 118). Training and documentation are two examples that can be used by an organisation to increase IS-related awareness. These mechanisms can reduce the intensity of technology complexity, leading to satisfaction with the computer system or applications. Technical support is defined as the “assistance, and technical support provided to professionals in the context of their use of IS” (p. 118). For instance, a quick-response and effective help desk can help users use and familiarise with the system. Technology involvement facilitation describes the “mechanisms that keep professionals involved in information system adoption and development” (p. 118). User participation in the planning and implementing processes will help them be familiar with the new system and reduce technology complexity, thereby enhancing satisfaction. Innovation support is the “mechanisms that encourage professionals to experiment and learn” (p. 119). This mechanism requires the management to take several actions so that users can be more innovative and explorative in using the IS, such as promoting supportive relationships among employees, facilitating communication and discussion, encouraging new ideas, and providing incentives for learning.

Different theoretical perspectives propose that support is an important mechanism to achieve organisational effectiveness. Organisational support theory (Eisenberger *et al.*, 1986) postulates the importance of supervisory support and job conditions as indicative of an organisation’s support. Eisenberger *et al.* noted that the antecedents of perceived organisational support (POS) such as supervisory support and job conditions influence employees’ general affective reactions to their job, such as satisfaction. Moreover, POS is valued as assistance from the organisation needed to carry out the job effectively and deal with stressful situations (Rhoades and Eisenberger, 2002). Past studies seemed to demonstrate the positive and significant effect of organisational support on user satisfaction (Dong *et al.*, 2009; Lee H. *et al.*, 2009; Mark *et al.*, 2012; Rouibah *et al.*, 2009; Sabherwal *et al.*, 2006; Sanchez-Franco, 2009). Hence, the following hypotheses were formulated:

- H1:** Literacy support is positively related to end-user satisfaction.
- H2:** Technical support is positively related to end-user satisfaction.
- H3:** Technology involvement facilitation is positively related to end-user satisfaction.
- H4:** Innovation support is positively related to end-user satisfaction.

### 2.4. Technology Self-Efficacy

Shwarzer and Jerusalem 1995; in Malliaris *et al.* (2012) defined self-efficacy as optimistic beliefs about one’s ability to deal with difficult situations. Following Bandura’s definition of self-efficacy, Compeau and Higgins (1995) described computer self-efficacy as “a judgment of one’s capability to use a computer” (p. 192). The judgments rely on the ability to apply the skills to broader tasks (for example, preparing written reports for decision making in human resources activities). Compeau and Higgins (1995), observed that computer self-efficacy was associated strongly with computer confidence and individual reactions to computing technology. Users with higher computer self-efficacy will use a computer effectively, leading to satisfaction. In the present study, technology self-efficacy was introduced as a moderator on the relationship between organisational IS-related support and end-user satisfaction.

Despite the overwhelming evidence of the effect of organisational support related to IS on end-user satisfaction and implementation of IS, some did not report a similar finding. Mark *et al.* (2012), argued that the effect of top management support may be different depending on the level of task interdependence. Dong *et al.* (2009), found inconsistent evidence on the critical role of top management support. Their results showed that top managers had to adjust their support actions as different support behaviours exercise influenced the implementation outcomes differently. For example, they demonstrated that a supply of key resources, such as funds, technologies, staff, and training programs, affected project completion more than other outcomes, such as the formation of user skills and attitudes. In line with Dong *et al.* and Mark *et al.*, the present study aimed at assessing the influence of different IS-support mechanisms on end-user satisfaction. Hence, the following hypotheses were developed:

- H5:** Technology self-efficacy will moderate the relationship between literacy support and end-user satisfaction of the HRMIS such that the relationship is stronger for individuals with higher technology self-efficacy.
- H6:** Technology self-efficacy will moderate the relationship between technical support and end-user satisfaction of the HRMIS such that the relationship is stronger for individuals with higher technology self-efficacy.
- H7:** Technology self-efficacy will moderate the relationship between technology involvement facilitation and end-user satisfaction of the HRMIS such that the relationship is stronger for individuals with higher technology self-efficacy.
- H8:** Technology self-efficacy will moderate the relationship between innovation support and end-user satisfaction of the HRMIS such that the relationship is stronger for individuals with higher technology self-efficacy.

## 3. Method

### 3.1. Sample and Data Collection

This study used purposive sampling, specifically judgment sampling, to collect data from a particular target group (Zikmund *et al.*, 2010); i.e. HRMIS end-user because a complete list of HRMIS end-user was unavailable (Sekaran and Bougie, 2010). The sample was selected with the help of human resource managers and HRMIS staff

in nine state governments and five ministries, which agreed to distribute between 50 and 100 sets of questionnaire. Altogether, 990 questionnaires were distributed. Before the distribution, a written request was made to the HR manager of the targeted government agencies who were given a brief description of the research study, the instruction on how to distribute and collect the completed questionnaires, and the tentative timeframe of the survey. An envelope with the researcher's address was provided to the human resource manager, who would collect the completed questionnaires and return them to the researcher.

Of 990 questionnaires, 623 were returned. However, 133 sets were removed due to unanswered items. Finally, 490 questionnaires were used for data analysis, yielding a response rate of 49.5%. Table 1 shows the demographic profile of the participants.

**Table-1.** Demographic Profile of Participants

| Demographic                                    | Categories                       | Frequency   | %                         |
|--|----------------------------------|-------------|---------------------------|
| Gender   | Male                             | 180         | 36.7                      |
|  | Female                           | 306         | 62.4                      |
| Race   | Malays                           | 447         | 91.2                      |
|  | Chinese                          | 24          | 4.9                       |
|  | Indians                          | 16          | 3.3                       |
| Education                                      | SPM                              | 221         | 45.1                      |
|  | Diploma                          | 152         | 31.0                      |
|  | Bachelor's degree or equivalent  | 66          | 13.5                      |
|  | Master's degree or equivalent    | 20          | 4.1                       |
|  | Doctoral degree                  | 2           | .4                        |
| Work position                                  | Others                           | 23          | 23                        |
|  | Non-management                   | 64          | 13.1                      |
|  | Middle-level management          | 102         | 20.8                      |
|  | First level supervisor           | 11          | 2.2                       |
|  | Top level management /executives | 19          | 3.9                       |
| Age  | Clerical                         | 292         | 59.6                      |
|  | < 30                             | 155         | 31.6                      |
|  | 31 – 35                          | 106         | 21.6                      |
|  | 36 – 43                          | 113         | 23.1                      |
|  | > 44                             | 116         | 23.7                      |
|  |                                  | <b>Mean</b> | <b>Standard deviation</b> |
| Working experience                             |                                  | 12.88       | 9.96                      |
| Years of working with the current organisation |                                  | 6.38        | 6.51                      |
| Years of experience in computer usage          |                                  | 13.4        | 6.26                      |
| Computer confidence                            |                                  | 5.75        | 0.97                      |

### 3.2. Measurement

The present study adapted the instrument of organisational mechanisms developed by Tarafdar *et al.* (2011b) to measure organisational IS-related support. Tarafdar *et al.* (2011b), reported the internal reliability of .86 for the overall organisational IS-related support. All 18 items were measured on a five-point Likert scale, ranging from '1' "strongly disagree" to '5' "strongly agree". Some examples of the items asked were "Our organisation provides end-user training before the introduction of HRMIS", "Our end-user help desk is easily accessible" and "New ideas are easy to implement". Minor modifications were made to the questions to suit the study sample. For example, "new IS" was replaced by "HRMIS."

Four questions measured end-user satisfaction on a seven-point Likert scale, ranging from '1' "strongly disagree" to '7' "strongly agree". The items asked include, "I am very contented with the information systems," "I am very pleased with the information systems," "I feel delighted with the information systems", and "Overall, I am very satisfied with the information systems." Au and Ngai (2008) reported that the items had the internal reliability of .925. However, some modifications were made to enable the instrument to fit the HRMIS environment. For instance, "I am very contented with the information systems" was modified to "I am very contented with the HRMIS" to ensure that the participants were constantly aware that they were answering to the HRMIS system.

Nine items that measured technology self-efficacy were adapted from Malliari *et al.* (2012). The instrument was reported to have the considerable internal reliability of .84. The items were measured on a five-point Likert scale, ranging from '1' "strongly disagree" to '5' "strongly agree". Amongst the items asked include, "I can solve most problems if I invest the necessary effort," "I can always manage to solve difficult problems if I try hard enough", and "I am confident that I could deal efficiently with unexpected events." The introductory phase "when engaged in HRMIS related tasks" was added. Respondents were also asked about their gender, age, education, race, and few questions relating to work.

## 4. Analysis and Result

### 4.1. Measurement Model

The partial least squares structural equation modelling (PLS-SEM) (Ringle *et al.*, 2005) was utilised to analyse the measurement and structural models. The evaluation of measurement model involves evaluation of convergent validity and discriminant validity of the constructs in the model. Convergent validity indicates the degree to which scores on one scale correlates with scores on another scales designed to access the same construct (Cooper and Schindler, 2011). Convergent validity can be assessed through factor loadings, composite reliability, and average variance extracted (Hair *et al.*, 2010). Loadings for items must be above .5, composite reliability must exceed .7, and the average variance extracted should be greater than .5 (Hair *et al.*, 2010). Table 2 shows that the results of the measurement model exceeded the recommended thresholds, with the CRs ranging from .80 to .93, the AVEs from .50 to .79, and the outer loadings were all greater than the recommended values. The scores indicated sufficient convergent validity.

On the other hand, discriminant validity is the extent to which scores on a scale do not correlate with scores on scales designed to measure different constructs (Cooper and Schindler, 2011). All items should load more strongly on their own construct in the model, and the average variance shared between each construct, and its measures should be larger than the variance shared between the construct and other constructs (Compeau *et al.*, 1999). In other words, the square root of the AVE of each construct higher than its correlations with all other constructs confirms their discriminant validity (Hair *et al.*, 2012). As shown in Table 3, the calculated values of AVE of all the construct presented in the diagonal values were higher than the correlation values presented in off-diagonal ones, indicating that the measurement model had adequate discriminant validity.

Table-2. Result of Measurement Model

| Constructs               | Items     | Loadings | AVE  | CR   |
|--------------------------|-----------|----------|------|------|
| Innovation support       | is14      | .714     | .503 | .832 |
|                          | is15      | .732     |      |      |
|                          | is16      | .539     |      |      |
|                          | is17      | .714     |      |      |
|                          | is18      | .817     |      |      |
| Literacy support         | ls1       | .893     | .525 | .809 |
|                          | ls2       | .676     |      |      |
|                          | ls3       | .789     |      |      |
|                          | ls5       | .474     |      |      |
| End-user satisfaction    | sat1      | .902     | .765 | .929 |
|                          | sat2      | .845     |      |      |
|                          | sat3      | .924     |      |      |
|                          | sat4      | .825     |      |      |
| Technology involvement   | techinv12 | .882     | .788 | .881 |
|                          | techinv13 | .893     |      |      |
| Technical support        | ts6       | .811     | .634 | .874 |
|                          | ts7       | .776     |      |      |
|                          | ts8       | .759     |      |      |
|                          | ts9       | .835     |      |      |
| Technology self-efficacy | tse1      | .753     | .521 | .843 |
|                          | tse3      | .817     |      |      |
|                          | tse4      | .682     |      |      |
|                          | tse5      | .614     |      |      |
|                          | tse8      | .725     |      |      |

Note: AVE = Average Variance Extracted, CR = Composite Reliability  
 ls4, techinv11, techinv10, tse9, tse2, tse7, and tse6 were deleted due to low loading.

Table-3. Discriminant Validity of Construct

|           | EUS          | INNO SUPP    | INVOLVE      | LIT SUPP     | TECH SUPP    | TSE          |
|-----------|--------------|--------------|--------------|--------------|--------------|--------------|
| EUS       | <b>0.875</b> |              |              |              |              |              |
| INNO SUPP | 0.187        | <b>0.709</b> |              |              |              |              |
| INVOLVE   | 0.179        | 0.500        | <b>0.888</b> |              |              |              |
| LIT SUPP  | 0.263        | 0.363        | 0.267        | <b>0.725</b> |              |              |
| TECH SUPP | 0.239        | 0.453        | 0.413        | 0.460        | <b>0.796</b> |              |
| TSE       | 0.289        | 0.257        | 0.149        | 0.257        | 0.255        | <b>0.721</b> |

EUS = End-user satisfaction, INNOSUPP = Innovation support, INVOLVE = Technology involvement facilitation, LITSUPP = Literacy support, TECHSUPP = Technical Support, TSE = Technology self-efficacy

### 4.2. Structural Equation Modelling

The structural model and hypotheses were tested using the PLS procedure (bootstrap analysis). First, R<sup>2</sup> was calculated to examine the predictive power of the structural model to identify how much each of the endogenous

constructs explains the variance in end-user satisfaction? (Hair *et al.*, 2012). Then, a bootstrapping technique with re-sampling 1000 was utilised to test the hypotheses. Table 4 shows that the three factors of organisational IS-related support (literacy support, technical support, and technology involvement facilitation) except innovation support were found to be positively related to end-user satisfaction. Thus, H1, H2, and H3 were supported but not H4.

To test the interaction effect of technology self-efficacy on the relationship between organisational IS-related support (literacy support, technical support, technology involvement facilitation, and innovation support) and end-user satisfaction, this study applied the product-indicator approach suggested by Chin *et al.* (2003) and Hair *et al.* (2014). The results revealed a non-significant relationship of the moderator variable (technology self-efficacy) with all organisational IS support factors (literacy support, technical support, technology involvement, and innovation support) (refer Table 5), providing no support for H5, H6, H7 and H8.

Table-4. Hypotheses Testing

| Hypothesis | Relationship  | Beta   | Std. error | t-value | Decision      |
|------------|---|--------|------------|---------|---------------|
| H1         | Literacy support → End-user satisfaction                    | 0.145  | 0.048      | 3.042** | Supported     |
| H2         | Technical support → End-user satisfaction                   | 0.077  | 0.053      | 1.459*  | Supported     |
| H3         | Technology involvement facilitation → End-user satisfaction | 0.080  | 0.052      | 1.392*  | Supported     |
| H4         | Innovation support → End-user satisfaction                  | -0.007 | 0.055      | -0.317  | Not Supported |

\*\*\*p< 0.01, \*\*p< 0.05, \*p<0.1 (based on one-tailed test with 1000 bootstrapping)

Table-5. Summary of Results for Moderating Effect

| Hypothesis | Relationship         | Std. beta | Std. error | t-value | Decision      |
|------------|----------------------|-----------|------------|---------|---------------|
| H5         | LITSUPP * TSE → EUS  | 0.028     | 0.052      | 0.542   | Not Supported |
| H6         | TECHSUPP * TSE → EUS | -0.031    | 0.097      | 0.321   | Not Supported |
| H7         | INVOLVE * TSE → EUS  | -0.104    | 0.117      | 0.891   | Not Supported |
| H8         | INNOSUPP * TSE → EUS | -0.050    | 0.075      | 0.670   | Not Supported |

\*\*\*p< 0.01, \*\*p< 0.05, \*p<0.1(based on one-tailed test with 1000 bootstrapping)

EUS = End-user satisfaction, INNOSUPP = Innovation support, INVOLVE = Technology involvement facilitation, LITSUPP = Literacy support, TECHSUPP = Technical Support, TSE = Technology self-efficacy

## 5. Discussion and Conclusion

The study was concerned with examining the structural relationship between organisational IS-related support and end-user satisfaction with HRMIS. The result demonstrated that literacy support, technical support, and technology involvement facilitation significantly and positively influenced end-user satisfaction. However, innovation support was not found to be a significant contributor. Generally speaking, the result aligns with previous studies that showed the vital role of organisational IS-related support in the successful implementation of a system, measured by user satisfaction (Fuglseth and Sorebo, 2014; Lee H. *et al.*, 2009; Rouibah *et al.*, 2009; Tarafdar *et al.*, 2011a). The present result also appeared to corroborate organisational support theory (Eisenberger *et al.*, 1986). When the organisation is perceived to have provided sufficient support related to information systems, such as documentation and training (i.e., literacy support), end-users are likely to find the system useful and use it at work. A clear documentation and effective training will enhance their work performance by reducing mistakes, for example. HRMIS end-users are likely to realise the benefits of using the system, thereby creating a favourable perception of the HRMIS which results in satisfaction with the system. The positive relationship between technical support and end-user satisfaction demonstrates that an effective, dependable helpdesk is critical. When HRMIS end-users face challenges in using the system due to technical changes or interruptions, an effective helpdesk helps can guide users in system usage, leading to their satisfaction and improving their attitudes (Tarafdar *et al.*, 2011a).

The study also revealed the role of user involvement in the HRMIS implementation. Although end-users in the Malaysian government agencies were not involved directly in the technical and design processes of HRMIS, their feedback was sought via surveys conducted by the Malaysian Administrative Modernisation and Management Planning Unit (MAMPU), the body that is responsible for the planning of HRIMS as one of the important initiatives to modernise and reform the administration of the public sector, or the Public Services Department (PSD), an agency that oversees administrative matters of all government-related agencies. Besides surveys, training sessions were designed to seek valuable comments from the end users about the HRMIS, particularly input about the features they would like to see in the system. Such involvement is likely to affect their satisfaction and their actual use of the system (Rouibah *et al.*, 2009).

The non-significant relationship between innovation support and end-user satisfaction was unexpected. However, the nature of the end-user tasks could explain the result. In this study, the majority of the end-users were clerical employees, whose tasks were operational and not technical; hence their technically innovative ideas could not have been sought in the process of planning, design, and implementation of the HRMIS. Furthermore, it is not a typical practice of the government agencies to give rewards or incentive to learn new skills, especially to clerical employees; hence, even if there were innovation support, it did not make any significant difference in their

satisfaction level in comparison to other types of organisational support. Taken together, the result supports the conclusion of [Dong et al. \(2009\)](#); and [Mark et al. \(2012\)](#) in that end-user satisfaction is influenced by different IS-support mechanisms. Of the three support mechanisms, literacy support had the greatest influence.

Another unexpected result was the non-significant role of technology self-efficacy in enhancing end-user satisfaction with HRMIS further. The result seems to suggest that technological self-efficacy is not a significant factor in end-user satisfaction. More important than self-efficacy is the support that the organisation provides to ensure that end-users (i.e., in this case, clerical employees) know how to use the system and understand the benefit of using the system. Since clerical employees were not directly involved in the design of the system, constant support in the form of training, helpdesk, etc. seemed to make a difference in helping them complete their task even if they were not familiar with the system and did not have the skills to use it in the beginning. This finding has a significant practical implication on the need for effective support mechanisms in modernising and reforming the administrative tasks of the public sector organisations in Malaysia. Another possible explanation for the non-significant moderating effect might suggest that the organisational IS-related support factors were derived from the domain of critical success factors of IS; hence, technology self-efficacy might not affect the relationships. Technology self-efficacy might be more relevant in the context of stressor-strain relationships. Also, since the HRMIS usage, for the most part, was not job specific, it was possible that technology self-efficacy did not have any effect in this context. Future research needs to be carried out to validate these claims. In particular, it is essential that the instruments of research be modified to reflect the idiosyncratic nature of the system or users to make the findings meaningful.

### 5.1. Theoretical and Managerial Implications

Theoretically speaking, the findings contribute to the literature by highlighting the effect of organisational IS-related support on end-user satisfaction with E-HRM (HRMIS). In particular, the study presents empirical evidence of the structural relationship between literacy support, technical support, and technology involvement facilitation and end-user satisfaction with E-HRM, especially in developing countries. Interestingly, literacy support was considered the most important factor to influence end-user satisfaction with E-HRM, followed by technical support and technology involvement facilitation. As a whole, the findings of the study validated the constructs developed by [Tarafdar et al. \(2011a\)](#). The findings suggest that in trying to understand end-user satisfaction, different support mechanisms matter to end-users. Hence, future researchers need to contextualise the support system to fit relevant users of the system.

From a managerial perspective, the findings showed the need for organisations to provide the relevant support factors to enhance end-user satisfaction and ensure the success of the implementation of the system. Continuous monitoring of HRMIS policies, standards, and quality are important sets of support that need to be offered by the HRMIS management team. Also, standard HRMIS measures such as training, proper documentation, and end-user involvement are effective organisational support mechanisms that can be implemented to support the system usage and create favourable perceptions of the HRMIS. Other than that, it is advisable that managers focus on leveraging HRMIS by installing required technology in HRMIS modules. This can be done by having an integrated system from a single vendor or technology HRMIS management system. Notably, this recommendation has a crucial implication particularly for improving end-user satisfaction because when the new or improved functionality of HRMIS modules are added to an HRMIS, it is an opportunity to reexamine the way HRMIS modules and HR processes are implemented and to what extent the new technology in administering HRMIS operates smoothly.

### 5.2. Limitations and Future Research

The findings should be interpreted by considering the limitations of the study. Firstly, the proposed research model in the present study was empirically examined using data of HRMIS end-users in government agencies in Malaysia which may be different from EHRM users in other contexts. Secondly, the distribution of the questionnaires could have been compromised because the researcher had no control over who got selected to participate. However, to ensure that the intended HRMIS end-users were sampled, screening questions were used. Additionally, the researcher also provided a cover letter which highlighted the importance of questionnaires distribution to other government agencies in the study. Although these preventives could minimise selection bias, they did not guarantee that such bias was avoided. Thirdly, the study examined the relationship between organisational IS-related factors and end-user satisfaction at a single point in time. End-users' perception of the system is likely to change especially after they have more experience in using the HRMIS over time. Thus, it is recommended that a longitudinal study is undertaken to investigate the behavioural change as a result of HRMIS use. Also, other dimensions of organisational support should be considered for future research to capture the issue of user satisfaction with EHRM or IS. In particular, informal peer support or network is a likely candidate to be examined as it has been found to be a crucial coping mechanism in the IS context ([Norazah and Ramayah, 2010](#)).

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