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ANTECEDENTS OF THE ACTUAL USAGE OF HRIS BY EMPLOYEES IN WFH AND HYBRID CONTEXTS: INTEGRATION OF DIT, TAM, AND UTAUT

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ABSTRACT

This study integrates the diffusion of innovation theory (DIT), technology acceptance model (TAM), and unified theory of acceptance and use of technology (UTAUT) to explore the antecedents of the actual usage of human resource information systems (HRISs) by employees in work-from-home (WFH) and hybrid contexts. The study gathered a total of 274 usable responses from employees across ten Sri Lankan software companies. Data analysis utilized the partial least square (PLS) path modelling technique, chosen due to the non-normality of the data. The research findings revealed that observability influences the perceived ease of use (PEOU) of HRIS in WFH and hybrid contexts. Similarly, compatibility emerged as the most critical attribute affecting perceived usefulness (PU). Both PEOU and PU, in conjunction with social influence, contribute to driving employees' behavioural intention to use HRIS in WFH and hybrid contexts. Ultimately, behavioural intention and facilitating conditions were identified as the major variables that impact the actual usage of HRIS by employees in WFH and hybrid contexts. Notably, within the expanding body of post-pandemic business literature, this study represents one of the very first to investigate the actual usage of HRIS in WFH and hybrid contexts. Practitioners can utilize the findings to enhance and optimize their HRIS adoption efforts.

KEYWORDS: *HRIS adoption, technology acceptance model, new normal, diffusion of innovation theory, unified theory of acceptance and use of technology*

1. INTRODUCTION

Human resource information system (HRIS) is an information management system used for the collection, storage, processing, analysis, retrieval and distribution of relevant information related to an organisation's human resources (Normalini et al., 2012; Teo et al., 2007; Troshani et al., 2011). Moreover, HRIS is seen as a strategic tool that can transform a human resource management (HRM) team from a routine processing and compliance role to a strategic business partner role (Dery et al., 2013; Khan et al., 2017;

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Maier et al., 2013). As a strategic business partner, an HRM team can use HRIS to synergistically combine two of the most important resources within an organization: people and information (i.e., information such as staffing details, applicant credentials, training and development data, salary projections, salary increments, and details related to promotions) to generate competitive advantage (Bamel et al., 2014; Teo et al., 2007; Vahdat, 2022). However, for this synergetic combination to occur, the adoption of the HRIS must first take place, followed by its actual usage by the employees (Teo et al., 2007).

Numerous studies have explored the adoption and usage of HRIS in recent years (Al Mamun, 2022; Alkhwaldi et al., 2023; Bamel et al., 2014; Jemine & Guillaume, 2022; Khan et al., 2017; Rahman et al., 2016; Satispi et al., 2023). However, one notable aspect is that, there is a lack of studies investigating the adoption or usage of HRIS by employees in work-from-home (WFH) and hybrid contexts. In the aftermath of the Covid-19 pandemic, WFH and hybrid work arrangements have become the new normal for certain industries (Troger, 2021; Vyas, 2022). Thus, it is crucial to understand whether the findings of the extant literature remain applicable in this new context.

The adoption of HRIS is defined as being receptive to the innovation and change demanded by HRIS (Teo et al., 2007). Due to the Covid-19 pandemic, companies have been forced to adopt and acknowledge the innovation and changes introduced by HRIS (Troger, 2021; Vahdat, 2022). However, adoption does not guarantee the successful diffusion of a technology and, ultimately, the usage of the technology by the relevant individuals. Diffusion refers to the process of communication through which an innovation moves or disseminates through specific channels from an individual, an organization, or any unit of adoption to another within a social system over time (Kee, 2017; Normalini et al., 2012). A successful diffusion of a technology ensures the actual usage of that technology by most individuals within that social system. Thus, forced adoption of HRIS, in the absence of proper diffusion, does not guarantee its actual usage by the human resources that feed information into the HRIS. Therefore, it is timely to examine the actual usage of HRIS in WFH and hybrid contexts. The aim of this study is therefore to:

Investigate the antecedents of actual usage of HRIS by employees in WFH and hybrid contexts.

The findings of this research offer managers an enhanced comprehension of the antecedents that influence HRIS usage behaviour in WFH and hybrid contexts. At the same time, this study aims to make a theoretical contribution to the growing body of literature on HRIS adoption and usage, as well as on HRM practices in the post-pandemic era.

2. THEORETICAL BACKGROUND

2.1. HRIS and the post-pandemic era

The integration of HRIS has become increasingly pivotal, particularly in the context of work-from-home and hybrid work environments. The paradigm shift brought about by the COVID-19 pandemic forced organizations across the world to swiftly adopt HRIS to facilitate remote work (Robberts, 2020; Vahdat, 2022). During this transformative period, organizations recognized the necessity of responsive HRIS that could be seamlessly accessed through various devices, accommodating the diverse technological landscapes of remote and hybrid working (Robberts, 2020). As employees transitioned to working from home, the demand for efficient HRIS solutions surged, prompting organizations to prioritize user-friendly interfaces and cross-device accessibility. Consequently, HRIS evolved from a conventional office tool to a dynamic and adaptive system, fostering a more agile and technologically inclusive approach to human resource management in the modern workforce landscape (Robberts, 2020).

Despite the successful adoption of HRIS, its effective usage has been challenged by various issues. These include poor adoption of employee and manager self-service functionalities, limited remote accessibility, a lack of flexibility and adaptability, challenges in decision-making due to poor data integrity, and difficulties in reporting (Robberts, 2020). These issues persist in industries where the "new normal" is being practiced. However, after a careful search of literature in Google Scholar and Scopus databases, the authors found little to no research examining the actual usage of HRIS in WFH and hybrid contexts.

2.2. Behavioural theories

Behavioural theories have been widely cited in the HRIS literature to explain the key determinants influencing user intentions and actual utilization (Alkhwaldi et al., 2023; Maier et al., 2013; Normalini et al., 2012; Rahman et al., 2016; Teo et al., 2007). To investigate the antecedents of the actual HRIS usage in WFH and hybrid contexts, this study integrates three behavioural theories, namely the Diffusion of Innovation Theory (DIT), the Technology Acceptance Model (TAM), and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Sahu et al., 2020). Even though these theories have been employed individually in previous studies on HRIS adoption, hardly any study has used all three theories in a single study. The integration of the three theories allows for an understanding not only of employees' overall perception of

HRIS adoption (utilizing TAM), but also of the specific attributes that encourage employees to embrace the application (employing DIT and UTAUT).

2.3. Technology Acceptance Model (TAM)

TAM is a widely recognized theoretical framework in the field of information systems and technology. Initially introduced by Davis (Davis, 1989), TAM seeks to clarify and forecast user acceptance and usage of technology, highlighting their perceptions and attitudes (Davis, 1989; Lee et al., 2011; Min et al., 2019; Myllymäki, 2021). Therefore, over the years, TAM has been used by researchers in many disciplines to study user acceptance and usage of various technologies (Kang et al., 2021).

At its core, TAM incorporates two fundamental elements. First, there is the concept of Perceived Ease of Use (PEOU), which focuses on users' perceptions of the effort required to operate a specific system (Davis, 1989; Marler & Dulebohn, 2005). The model proposes that technology is more likely to be accepted if users find it user-friendly and easy to navigate (Davis, 1989; Maier et al., 2013; Marler & Dulebohn, 2005). The second key element is the Perceived Usefulness (PU), which emphasises the users' belief that a system enhances their job performance or simplifies their tasks and thus influences technology acceptance (Davis, 1989; Maier et al., 2013; Marler & Dulebohn, 2005).

TAM establishes several crucial relationships among these core elements. It asserts that the PEOU positively influences perceived usefulness, as a system that users find easy to navigate is more likely to be perceived as useful (Menant et al., 2021; Premkumar & Bhattacherjee, 2008; Venkatesh & Davis, 1996). Furthermore, users' perceptions of ease of use directly impact their behavioural intention to use the system, with greater ease of use leading to a higher intention to use (Menant et al., 2021; Venkatesh & Davis, 1996). In addition, perceived usefulness has a direct positive impact on behavioural intention. When users believe that a system is useful, they are more likely to express the intention to use it (Menant et al., 2021; Premkumar & Bhattacherjee, 2008; Venkatesh & Davis, 1996). This behavioural intention serves as a robust predictor of actual system use, indicating that the stronger the intention, the more likely users are to engage with the technology (Menant et al., 2021; Venkatesh & Davis, 1996).

In the context of HRIS, if employees find the system easy to navigate and perceive it as beneficial in enhancing their job-related tasks, they are more likely to embrace and actively use the HRIS. The user's positive perceptions of the system's ease of use and usefulness contribute to a stronger intention to use, which, as per TAM, is a strong predictor of the actual system usage. On this basis, this study proposes that,

H1: Employees' usage intention is positively related to their actual usage of the HRIS in WFH and hybrid contexts.
H2: Employees' PEOU is positively related to their behavioural intention to use the HRIS in WFH and hybrid contexts.
H3: Employees' PU is positively related to their behavioural intention to use HRIS in WFH and hybrid contexts.
H4: Employees' PEOU is positively related to their PU of HRIS in WFH and hybrid contexts.

2.4. Diffusion of Innovation Theory (DIT)

While previous research has frequently applied the TAM to explain user acceptance of various technologies, uncertainties persist regarding its adequacy in explaining the adoption of diverse technology types (Min et al., 2019). To address this limitation, researches have advocated for the integration of TAM with other theories. The Diffusion of Innovation Theory (DIT) is one such theory. This integration provides enhanced explanatory power, particularly in contexts where the actual usage of technologies occurs (Lee et al., 2011; Min et al., 2019).

The Diffusion of Innovation Theory (DIT), a comprehensive theory encompassing social and psychological aspects, seeks to forecast individuals' decisions regarding the adoption of a new innovation by identifying their adoption patterns and understanding its structure (Min et al., 2019; Rogers, 1995). The theory proposes five innovation characteristics: relative advantage (innovations perceived as offering economic benefits or convenience are more likely to be adopted), complexity (the perceived difficulty or ease of understanding and using the innovation), compatibility (the extent to which an innovation aligns with the current values, needs, and experiences of potential adopters), observability (the extent to which the results or benefits of an innovation are visible to others), and trialability (the ability of individuals to experiment with or test the innovation before full adoption) - which serve as antecedents of the actual usage (Jemine & Guillaume, 2022; Min et al., 2019).

Unlike TAM, DIT presents more precise attributes of innovations and offers valuable insights into why users adopt innovations and how they make their adoption decisions. These characteristics, conceptualized as antecedents to TAM, especially in the context of information technology adoption (Min et al., 2019; Wang et al., 2012), are essential vital in explain-

ing individual's technology usage behaviour.

This study focuses on the actual usage of HRIS in remote work and hybrid contexts, and includes respondents who have prior experience using HRIS. These respondents have not had the opportunity to test HRISs adopted by their organizations but have been forced to use mobile and desktop versions of HRISs. Thus, in the context of this study, trialability is not a valid construct. Furthermore, some previous studies claim that the complexity construct is the same as PEOU, and, therefore, is not considered in instances where DIT is integrated with TAM (Moore & Benbasat, 1991; Yuen et al., 2021). Hence, the complexity construct was not considered in this study. Therefore, the integration of DIT into TAM in this study involves exploring the correlations between DIT elements (such as relative advantage, compatibility, and observability) and TAM elements (PU and PEOU), that lead to behavioural intention and actual usage.

2.4.1. Relative advantage (RA)

RA is characterized by the extent to which an innovation is perceived as offering greater advantages than its preceding version (Rogers & Shoemaker, 1983). Individuals are more likely to use new innovations when they perceive them to be more useful, resulting in increased efficiency and effectiveness (Lin & Chen, 2012; Min et al., 2019). Individuals assess the overall merits of a technological application by comparing it to the technologies they have previously used, thereby influencing both PU and PEOU (Min et al., 2019; Yuen et al., 2021).

Interoperable HRIS allows employees to effortlessly connect and share information across various systems and platforms, streamlining processes such as data management, employee communication, and workflow coordination (Robberts, 2020). This results in a more user-friendly experience, improved productivity, and a higher degree of adaptability to the dynamic work environments characteristic of WFH and hybrid settings. These features collectively enhance the PU and PEOU. Thus, the following hypotheses can be postulated:

H5: RA is positively related to the PU of HRIS in WFH and hybrid contexts.
H6: RA is positively related to the PEOU of HRIS in WFH and hybrid contexts.

2.4.2. Compatibility

Compatibility, within the context of DIT and the usage of an information technology platform by employees, refers to the extent to which the HRIS is perceived as aligning with employees' existing values, beliefs, habits, and past experiences (Rogers, 1995). Compatibility plays a crucial role in investigating how users' previous experiences with information systems influence both PU and PEOU (Min et al., 2019; Tung et al., 2009; Yuen et al., 2021). When an HRIS aligns with users' existing values, experiences, and habits, it can generate a user-friendly experience. This compatibility is, therefore, expected to positively influence employees' perceptions of the HRIS, enhancing both its PU and PEOU in WFH and hybrid settings. Therefore, it is hypothesized that:

H7: Compatibility is positively related to the PU of HRIS in WFH and hybrid contexts.
H8: Compatibility is positively related to the PEOU of HRIS in WFH and hybrid contexts.

2.4.3. Observability

Another element within DIT is observability, which indicates how noticeable an innovation is to the individuals within a social system and how readily its benefits can be observed and communicated (Rogers, 2003). When integrating DIT elements into TAM, previous studies have shown that when employees can easily observe the system, it has a favourable impact on PU and PEOU (Min et al., 2019; Yuen et al., 2021). Employees are more inclined to adopt new innovations when they can easily recognise the visible effects or benefits of the system. In the context of HRIS usage in WFH and hybrid environments, it can be assumed that if the benefits provided by the HRIS are easily observed and communicated, employees' PU and PEOU may be positively influenced. Thus, the following hypotheses can be proposed.

H9: Observability is positively related to the PU of HRIS in WFH and hybrid contexts.
H10: Observability is positively related to the PEOU of HRIS in WFH and hybrid contexts.

2.5. Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT is an all-encompassing framework that integrates multiple models of technology acceptance to explain the factors that influence individuals' acceptance and utilization of technology. Developed by Venkatesh et al. (2003), UTAUT synthesizes elements from the TAM, the Theory of Reasoned Action (TRA), and other models to provide a more inclusive understanding of technology adoption. UTAUT identifies four primary factors that impact users' intentions to use and the practical utilization of technology, namely: performance expectancy (the extent to which users perceive that utilizing a specific technology will help them perform tasks more efficiently), effort ex-

pectancy (the perceived ease of use of the technology for the users), social influence (the influence of peers, family, and colleagues, on an individual's intention to use a technology), and facilitating conditions (the extent to which the users believe that the necessary technical infrastructure and support are available to enable successful use of technology) (Al Mamun, 2022; Alkhwaldi et al., 2023; Rahman et al., 2016; Venkatesh et al., 2003).

Out of the four key determinants in UTAUT, this study does not consider performance expectancy and effort expectancy as performance expectancy is analogous to PU, and effort expectancy resembles PEOU (Kumar & Bervell, 2019; Venkatesh et al., 2003). Therefore, this study focuses exclusively on social influence and facilitating conditions in formulating its hypotheses.

2.5.1. Social influence

Unlike TAM and DIT, the UTAUT model acknowledges the social context as a crucial element in the adoption of technology and emphasizes the impact of interpersonal relationships on users' decision-making processes. This recognition is important because understanding the role of social influence offers valuable insights for organizations and researchers seeking to enhance technology acceptance by considering the social dynamics that accompany the adoption of new technologies.

This construct considers the influence of significant others, such as peers, colleagues, friends, and family members, in shaping an individual's attitude and behavioural intentions toward using a particular technology (Alkhwaldi et al., 2023; Rahman et al., 2016; Venkatesh et al., 2003). Individuals often look to those around them for guidance and cues on whether to adopt a new technology. If influential others have a positive attitude toward the technology or have already adopted it, the individual is more likely to perceive the technology positively and show a greater intention to use it. When the same argument is adopted for this study, the following hypothesis can be formulated:

H11: Social influence is positively related to employee's behavioural intention to use HRIS in WFH and hybrid contexts.

2.5.2. Facilitating conditions

Facilitating conditions include aspects such as adequate training, technical support, and resources provided by the organization to support users in using the technology (Alkhwaldi et al., 2023; Rahman et al., 2016; Venkatesh et al., 2003). Technical facilitating conditions encompass the perceived compatibility and accessibility of the technology, ensuring that users have the necessary tools and systems to use the technology seamlessly.

In essence, facilitating conditions emphasize the importance of a supportive environment and the availability of necessary resources to enhance users' acceptance and adoption of technology. Organizations aiming to promote successful technology implementation should focus on addressing and optimizing these facilitating conditions to create an environment conducive to technology adoption and use (Alkhwaldi et al., 2023; Rahman et al., 2016; Venkatesh et al., 2003). Several previous studies have hypothesized that facilitating conditions are a crucial factor for HRIS usage (Al Mamun, 2022; Alkhwaldi et al., 2023; Rahman et al., 2016). Thus, it is possible to propose the following hypothesis.

H12: Facilitating conditions are positively related to the actual usage of HRIS by employees in WFH and hybrid contexts.

Based on the extensive literature review and the proposed hypotheses of the study, a conceptual model presented in Figure 1 was formulated.

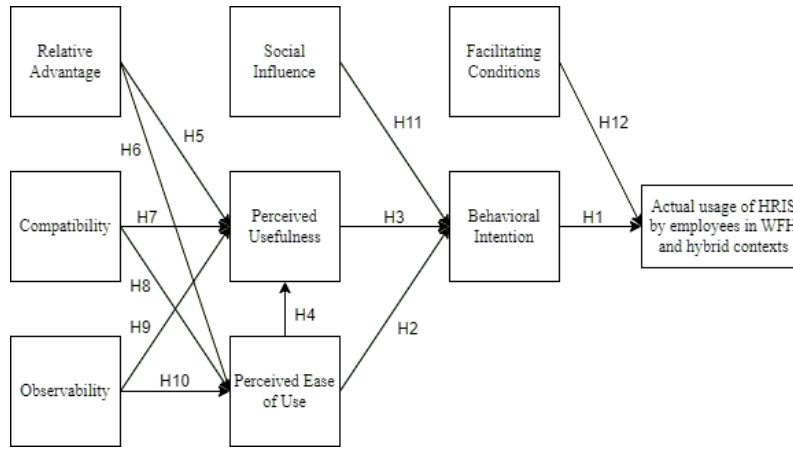

Figure 1. *Conceptual model*

3. METHODOLOGY

To explore the research hypotheses, a quantitative methodology was employed, utilizing a survey questionnaire to assess the constructs outlined in the conceptual model. First, a pretest was conducted to adapt the questionnaire to align with the context of the study, employing the procedure suggested by Teo et al. (2007). Following the pretest, the main study was conducted using a survey administered to a convenience sample of employees, utilizing HRIS in WFH and hybrid contexts, drawn from ten software development companies in the Western Province of Sri Lanka.

3.1. Pretest

A survey instrument was developed and subjected to an initial trial involving five faculty members. Consistent with the approach outlined in Teo et al. (2007), their feedback was requested regarding the wording, structure, sequence, and overall clarity of the questionnaire items. The revised version was then evaluated by ten employees from two software development companies to assess its clarity, readability, and understandability. Based on their feedback, minor revisions were made to improve the wording and organization of selected items.

3.2. Sample

When selecting the sampling strategy, this study followed a similar approach to several previous studies that have investigated the HRIS adoption (Alkhwaldi et al., 2023; Teo et al., 2007). The respondents for this study were employees from ten software development companies that have been practicing WFH and hybrid work models since March 2020. The human resource managers of these companies gave their consent to contact their employees. The authors received fifty email addresses from each of the ten companies, totalling 500 email addresses. The questionnaire, created in Google Forms, was distributed via email to these 500 employees. No compensation was provided for participation. The questionnaire included two pre-screening questions designed to verify whether the employees have been using interoperable HRIS to communicate and share HR-related information with their company's HR team while working in WFH and hybrid modes since the COVID-19 pandemic. The first pre-screening question focused on the duration of interoperable HRIS use in EFH and hybrid contexts. The purpose of this question was to find out whether the respondent had been using HRIS for a considerable period. The second question aimed to identify whether the respondent frequently uses HRIS while working remotely or in hybrid settings for various HR purposes. The questionnaire was configured with mandatory response fields to avoid missing values.

Upon the completion of the data gathering phase, the authors received 303 responses (response rate = 60.6%). All the respondents had used HRIS regularly for more than six months. Therefore, the authors included all the responses in an initial review to inspect unengaged responses. During this check, they identified 29 unengaged responses, which were subsequently eliminated. A total of 274 valid responses were retained for data analysis.

3.3. Instrument

The suggested theoretical model consists of nine factors, which were evaluated using a total of 42 items. To ensure content validity, the majority of instrument items were borrowed from previous studies (Alkhwaldi et al., 2023). The measurement instrument used to assess relative advantage (9 items) was adopted from Moore and Benbasat (1991). Four items, also from Moore and Benbasat (1991), were used to measure compatibility. The instrument used to measure observability (2 items) was borrowed from Min et al. (2019), with modifications made to the items to align the scale with the context of the study. Social influence was assessed using four items from Alkhwaldi et al. (2023), while facilitating conditions were measured using a four-item scale proposed by the same study. A six-item scale from Davis (1989) was employed to measure PEOU. Additionally, a five-item scale from Min et al. (2019) was adopted to assess PU, with modifications to suit the context of the study. For both behavioural intention and actual usage, two four-item measurement scales were borrowed from Abbad (2021), with adjustments made to ensure the suitability of both scales for the context of the study.

The measurements were adjusted and tailored to fit the specific context of this study: the actual usage of HRIS by employees in WFH and hybrid contexts (Alkhwaldi et al., 2023; Min et al., 2019). While certain original measurements utilized a seven-point Likert scale, (Dawes, 2008) argued that there is minimal distinction between seven- and five-point data sets. Furthermore, Revilla et al. (2014) suggested that opting for a five-point scale in a study instrument is more advantageous than employing an 11- or seven-point scale. Thus, each construct in this study was evaluated using a five-point Likert scale, ranging from "1 (strongly disagree)" to "5 (strongly agree)."

3.4. Demographic data analysis and hypothesis testing

The authors began the data analysis by examining demographic data. During this process, they analysed demographic data related to gender, age, the highest level of education, years of experience, and years of using HRIS in WFH and hybrid contexts. The IBM SPSS Statistics software package was used to conduct demographic data analysis.

When testing the normality of the data, the authors found that most of the data did not follow a normal distribution. Hair et al. (2011); Hair et al. (2012); and Henseler et al. (2009) suggest that Partial Least Squares Path Modelling Structural Equation Modelling (PLS-SEM) is suitable for hypothesis testing when the data are not normally distributed. Thus, the authors decided to use PLS-SEM for hypothesis testing.

Hypothesis testing with PLS-SEM is a three-stage process: (1) testing the reflective measurement model, (2) testing the formative measurement model, and (3) testing the structural or inner model (Hair et al., 2011; Hair et al., 2012; Henseler et al., 2009). Since all the measurement scales borrowed for this study are considered reflective constructs, there was no need to test a formative measurement model. Therefore, the authors conducted tests of the reflective measurement model and the structural model to test the proposed hypotheses. The SmartPLS software package was used to conduct data analysis related to hypothesis testing.

3.5. Common Method Bias (CMB)

Previous research on HRIS adoption highlights the importance of testing whether the collected data is influenced by common method bias (CMB) (Alkhwaldi et al., 2023). Kock (2017) proposes using PLS-SEM to test CMV in a dataset. He suggests that "if all VIFs resulting from a full collinearity test are equal to or lower than 3.3, the model can be considered free of common method bias" (Kock, 2017, p. 253). Based on this recommendation, the authors tested the VIF values for each construct and found that all VIF values related to the constructs were less than 3.3. Thus, it was concluded that this study was not influenced by CMB.

4. RESULTS

4.1. Demographic profile of the respondents

This section presents the demographic profile of the respondents. As previously mentioned, the total usable sample size was 274. Among these, 179 were males (65.3%), while 95 were females (34.7%). In terms of age distribution, the majority of respondents fell within the 20-29 age range, with 143 individuals (52.2%). There were 103 (37.6%) respondents in the 30-39 age group, and the remaining 28 respondents (10.2%) were aged between 40 and 49. Notably, there were no respondents aged 50 or above.

Regarding the highest educational qualification, 163 respondents held master's degrees (59.5%), 93 held bachelor's degrees (33.9%), and 18 held higher national diplomas (6.6%). No respondents held doctoral degrees. In terms of work experience, the majority of respondents had less than 5 years of experience, namely 118 (43.1%), while 112 (40.9%) had 5-10 years of experience, and 44 (16%) had more than 15 years of experience.

Finally, concerning HRIS usage in work-from-home (WFH) and hybrid contexts, 222 respondents (81%) reported using HRIS for 1-5 years, while 52 respondents (19%) indicated usage for a period between 6 months to 1 year. Notably, no respondents reported frequent use of HRIS in WFH and hybrid contexts for more than 5 years.

4.2. Analysis of the outer model

When examining the outer model, the authors initially conducted a composite reliability analysis, following the recommendations of Hair et al. (2011); Hair et al. (2012); and Henseler et al. (2009). The analysis revealed that none of the constructs had composite reliability values below 0.6. Consequently, it was concluded that the criterion for composite reliability was met. Subsequently, the authors conducted an indicator reliability analysis (Hair et al., 2011; Hair et al., 2012; Henseler et al., 2009). Indicator reliability was assessed by examining the outer loadings of each item in the outer model. Items with outer loadings below 0.6 (RA_1, RA_2, RA_3, RA_6, RA_7, RA_8, and RA_9) were eliminated following the recommendation of Hulland (1999). The statistical significance of each remaining item was then tested using the bootstrapping option in SmartPLS version 4, which revealed that all retained items were statistically significant ($p < 0.001$).

Following the guidelines of Hair et al. (2011); Hair et al. (2012); and Henseler et al. (2009), the authors then assessed convergent validity. Fornell and Larcker (1981)></Cite></EndNote> recommend using the Average Variance Extracted (AVE) to assess convergent validity. None of the constructs had AVE values below 0.5, leading to the conclusion that the outer model satisfied the criteria for convergent validity.

Lastly, discriminant validity was assessed in

TABLE 1. Results of the reflective measurement model analysis

Construct	Items	Factor Loadings	Average Variance Extracted (AVE)	Composite Reliability
Relative Advantage (RA)	RA4 RA5	0.752 0.904	0.692	0.640
Compatibility (COMP)	COMP1 COMP2 COMP3 COMP4	0.831 0.893 0.899 0.674	0.688	0.887
Observability (OBS)	OBS1 OBS2	0.897 0.889	0.798	0.747
Perceived Ease of Use (PEOU)	PEOU1 PEOU2 PEOU3 PEOU4 PEOU5 PEOU6	0.758 0.858 0.702 0.826 0.826 0.817	0.640	0.894
Perceived Usefulness (PU)	PU1 PU2 PU3 PU4 PU5	0.837 0.931 0.945 0.944 0.847	0.814	0.950
Social Influence (SI)	SI1 SI2 SI3 SI4	0.921 0.787 0.838 0.827	0.714	0.890
Facilitating Conditions (FC)	FC1 FC2 FC3 FC4	0.668 0.710 0.849 0.808	0.581	0.814
Behavioural Intention (BI)	BI1 BI2 BI3 BI4	0.789 0.831 0.812 0.779	0.645	0.820
Actual Usage (AU)	AU1 AU2 AU3 AU4	0.766 0.836 0.887 0.908	0.724	0.894

accordance with the recommendations of Hair et al. (2011); Hair et al. (2012); and Henseler et al. (2009) to complete the outer model evaluation. Discriminant validity was tested using two methods. First, a cross-loadings evaluation was conducted, which showed that the outer loadings of all indicators on their respective constructs exceeded the loadings on any other constructs, as suggested by Henseler et al. (2009), thus confirming discriminant validity. Second, a comparison was made between the square root of the AVE and the intercorrelations among constructs. The square root of the AVE for all constructs surpassed the inter-construct correlations, providing evidence for discriminant validity, as outlined by Fornell and Larcker (1981).

A summary of the reflective measurement model analysis is presented in Table 1, and the results of the discriminant validity test using the Fornell and Larcker criterion are shown in Table 2.

Following the guidelines of Hair et al. (2011); Hair et al. (2012); and Henseler et al. (2009), the authors initiated the analysis of the inner model by estimating path coefficients. In this process, the sign, magnitude, and significance of the path coefficients were considered, and the significance of each path coefficient was tested using the bootstrapping feature of SmartPLS version 4.

At the conclusion of the analysis, it was determined that five relationships proposed in the hypotheses were not significant. The estimation of path

TABLE 2. Outcome of the discriminant validity test using Fornell and Larcker

	AU	BI	COMP	FC	OBS	PEOU	PU	RA	SI
AU	0.851								
BI	0.391	0.803							
COMP	0.545	0.353	0.829						
FC	0.465	0.316	0.309	0.762					
OBS	0.342	0.351	0.258	0.086	0.893				
PEOU	0.215	0.415	0.247	-0.052	0.597	0.800			
PU	0.542	0.468	0.626	0.489	0.243	0.145	0.902		
RA	0.102	0.162	-0.045	0.058	0.002	0.217	0.086	0.832	
SI	0.353	0.426	0.284	0.442	0.127	0.149	0.557	0.244	0.845

coefficients revealed no relationship between relative advantage and PEOU and PU. Both relationships had significance values greater than 0.05, leading to the rejection of H5 and H6. Furthermore, H8 was rejected as the results suggested no relationship between compatibility and PEOU ($p > 0.05$). H9 was also rejected with a significance value greater than 0.05 ($p > 0.05$), indicating no relationship between observability and PU. The final rejected hypothesis was H4 ($p > 0.05$), which indicated no significant relationship between PEOU and PU.

On a positive note, the results indicated that seven hypotheses were significant and can be accepted. Compatibility had a positive impact on PU ($\beta=0.634$, $p < 0.001$). Although observability did not affect PU, it had a positive effect on PEOU ($\beta=0.601$, $p < 0.001$). Social influence ($\beta=0.208$, $p < 0.05$), PU ($\beta=0.302$, $p < 0.01$), and PEOU ($\beta=0.341$, $p < 0.01$) each had positive effects on behavioural intention, respectively. Furthermore, facilitating conditions had a positive relationship with the actual usage of HRIS in WFH and hybrid contexts ($\beta=0.380$, $p < 0.001$). Finally, behavioural intention had a positive impact on the actual usage of HRIS in WFH and hybrid contexts ($\beta=0.270$, $p < 0.01$). A summary of the rejected and accepted hypotheses is presented in Table 3.

After estimating the path coefficients, the authors tested the coefficient of determination (R^2) values of each endogenous latent variable (Hair et al., 2011; Hair et al., 2012; Henseler et al., 2009). Min et al. (2019) suggest that an R^2 value greater than 0.26 indicates a reliable predictive power. In this study, all endogenous latent variables-PEOU ($R^2=0.361$), PU ($R^2=0.402$), behavioural intention ($R^2=0.372$), and actual usage of HRIS in WFH and hybrid contexts ($R^2=0.282$)-had R^2 values greater than 0.26, thus indicating reliable predictive power.

Third, following the recommendation of Hair et al. (2011); Hair et al. (2012); and Henseler et al. (2009), the authors calculated the effect size (f^2) of each predictor latent variable in the inner model. Henseler et al. (2009) suggest that f^2 values of 0.02, 0.15, and 0.35 indicate weak, medium, and large effect sizes, respectively. Facilitating conditions had a medium effect on the actual usage of HRIS in WFH and hybrid contexts ($f^2=0.181$). PEOU also had a medium effect on behavioural intention ($f2=0.180$). In addition, compatibility and observability had large effects on PU ($f^2=0.672$) and PEOU ($f^2=0.565$), respectively. All the other predictor latent variables had a weak effect on their exogenous latent variables.

Finally, the authors conducted cross-validation to complete the analysis of the inner model. If the cross-validation values are greater than zero, it indicates that the hypothesized conceptual model has significant predictive ability (Henseler et al., 2009; Min et al., 2019). The authors calculated the cross-validation values using the PLSpredict feature of the SmartPLS version. Hair et al. (2019) recommend setting the number of folds to 10 and running the PLSpredict algorithm once. Following this recommendation, the authors found that all cross-validation values are greater than zero, thus fulfilling the final criterion of the inner model analysis.

TABLE 1. Summary of the hypothesis testing

Hypotheses	Path Coefficient	P-Value	Result of the Hypothesis Testing
H1: BI→AU	0.270	0.004	Accepted
H2: PEOU→BI	0.341	0.002	Accepted
H3: PU→BI	0.303	0.001	Accepted
H4: PEOU→PU	-0.139	0.305	Rejected
H5: RA→PU	0.144	0.251	Rejected
H6: RA→PEOU	0.221	0.105	Rejected
H7: COMP→PU	0.624	0.000	Accepted
H8: COMP→PEOU	0.110	0.383	Rejected
H9: OBS→PU	0.165	0.181	Rejected
H10: OBS→PEOU	0.568	0.000	Accepted
H11: SI→BI	0.207	0.023	Accepted
H12: FC→AU	0.390	0.000	Accepted

5. DISCUSSION

This study accomplished its aim by revealing the antecedents that influence the actual usage of HRIS by employees in WFH and hybrid contexts. The authors identified several theoretical and practical implications based on the findings. This section elaborates on these implications, while also addressing the limitations of the study and offering suggestions for future researchers.

5.1. Theoretical implications

According to the authors' understanding, this study marks the first instance of integrating DIT, TAM, and UTAUT to explore the antecedents of the actual HRIS usage. This integration allowed the study to propose a distinctive theory that clarifies the attributes influencing an employee's perception of behavioural intention to use HRIS and the attributes driving its actual usage in WFH and hybrid contexts. Previous research on HRIS adoption has primarily focused on understanding the attributes that shape behavioural intention and usage (Alkhwaldi et al., 2023; Rahman et al., 2016; Teo et al., 2007). However, there is a notable absence of studies examining the connection between employees' perception and behavioural intention. Therefore, the inclusion of PEOU and PU in the theory contributes to the uniqueness of this study's findings.

Despite the significance of HRIS in the post-pandemic new normal and its role in fostering connections between employees and HRM divisions through information, few studies have investigated the factors that drive employees to use HRIS in WFH and hybrid contexts. Considering the growing post-pandemic business literature and the increasing prevalence of HRIS in WFH and hybrid work setups, the lack of theoretical focus on HRIS adoption in the post-pandemic era represents a substantial gap. The theory proposed in this study aims to address this void. Researchers interested in exploring similar topics in different contexts can apply the theory developed here to expand theoretical knowledge on the actual usage of HRIS by employees in WFH and hybrid contexts.

Another crucial finding is that the final theory, supported by empirical evidence, indicates that the relative advantage does not have a significant impact on employee perceptions. Existing literature suggests two main explanations for this outcome. First, employees may be accustomed to existing systems, making it challenging for a new system to clearly demonstrate its relative advantage (Hashimy et al., 2023). Second, during the indicator reliability analysis, several items related to perceived benefits were found to be statistically insignificant. This suggests that employees may not recognise or appreciate the relative advantage if the benefits of HRIS are not effectively communicated (Moore & Benbasat, 1991). These findings highlight the importance of effective communication in influencing employees' perceptions. Accordingly, future researchers could enhance the theory proposed in this study by incorporating constructs related to communication.

Concerning the other two factors that influence an employee's perception, the results suggest

that compatibility influences PU but not PEOU and that observability influences PEOU but not PU. The absence of a statistically significant relationship between compatibility and PEOU could be influenced by factors such as communication gaps or insufficient clarity regarding how compatibility directly affects user-friendliness. User experience issues, including potential complexities in the HRIS interface, may contribute to this rejection and impact employees' perceptions of ease of use. Similarly, the lack of a relationship between observability and PU may stem from the limited visibility of HRIS benefits, potentially complex features that are not easily observable, or a communication gap concerning the benefits of the system. If employees are unable to clearly recognise and understand the benefits of the HRIS in their work, this may diminish the perceived usefulness associated with observability.

The remaining relationships in the theory proposed by this study align with previous research. The findings, indicating that PEOU and PU drive the behavioural intention to use HRIS, are consistent with Menant et al. (2021); Premkumar and Bhattacherjee (2008); and Venkatesh and Davis (1996). Similarly, the relationships among social influence, behavioural intention, facilitating conditions, and the actual usage of HRIS by employees in WFH and hybrid contexts are consistent with the existing literature on UTAUT (Rahman et al., 2016; Venkatesh et al., 2003).

5.2. Practical implications

This study offers several important practical implications. HRM professionals in companies embracing the new normal will benefit from these insights as they enable HR to "simultaneously become strategic, flexible, cost-efficient, and customer-oriented." (Shrivastava & Shaw, 2003, p. 201). First, HRM professionals should tailor HRIS interfaces and functionalities to align seamlessly with employees' existing work practices and preferences, ensuring compatibility and fostering smoother integration in WFH and hybrid contexts. Second, HRM professionals can enhance observability of HRIS by providing engaging demo videos, utilizing learning management systems for comprehensive training, and creating interactive platforms to showcase the visible benefits of the system in WFH and hybrid contexts. Third, HRM professionals should recognize the significant impact of social influence on employees' behavioural intentions to use HRIS and strategically leverage social networks, peer endorsements, and collaborative platforms to positively shape attitudes and encourage HRIS adoption in WFH and hybrid contexts. Fourth, HRM professionals should focus on creating a supportive and technologically equipped work environment, ensuring seamless access to HRIS tools and resources, to enhance facilitating conditions and promote the actual usage of HRIS by employees in WFH and hybrid contexts.

According to the findings of this study, implementing these actions will foster a positive perception of HRIS among employees working in WFH and hybrid modes. This positive perception is likely to strengthen their behavioural intention to use HRIS among these employees and, ultimately, increase actual usage in WFH and hybrid modes.

5.3. Limitations of the study and suggestions for future researchers

Despite the theoretical and practical implications of this study, several limitations should be acknowledged. First, the conceptual framework was developed using only three behavioural theories, as previous studies on HRIS adoption have predominantly relied on these theories. However, other well-established theories, such as Behavioural Decision Theory and Task-Technology Fit Theory, could provide additional insights into the actual usage of HRIS by employees in WFH and hybrid contexts. Future researchers could generate more novel findings by integrating the theory proposed in this study with other behavioural theories.

Second, this study was unable to identify antecedents that explain at least half of the variation in the actual usage of HRIS by employees in WFH and hybrid contexts (R^2=0.282), even though Min et al. (2019) suggest that any R^2 value greater than 0.26 indicates reliable predictive power. As noted earlier in the discussion, this study did not consider the role of communication in driving the actual usage of HRIS. In addition, other behavioural theories propose further antecedents not examined here. Thus, future researchers could conduct studies to identify more antecedents that impact the actual usage.

Third, this study was conducted in Sri Lanka, with data collected from employees at ten software companies. Consequently, the generalizability of the results is limited. These findings may not be universally applicable to other contexts and industries. Therefore, future researchers could test refined versions of the proposed conceptual framework to assess the broader applicability of the theory in diverse contexts and industries.

Fourth, this study adopted a quantitative research approach, which, while providing valuable statistical insights, may overlook the context-specific aspects. Future researchers are encouraged to complement these findings with qualitative research

methods, diving deeper into the subjective experiences and perceptions of participants. Qualitative approaches can generate richer, context-specific details that quantitative methods might not be able to capture, thereby fostering a more comprehensive and detailed understanding of the complex dynamics involved in the adoption of HRIS in WFH and hybrid contexts.

6. CONCLUSION

In conclusion, this study successfully achieved its aim of investigating the antecedents of actual HRIS usage by employees in WFH and hybrid contexts. The findings revealed that seven hypotheses (H1, H2, H3, H7, H10, H11, and H12) were accepted, underscoring the critical role of factors such as compatibility, observability, social influence, behavioural intention, perceived ease of use (PEOU), perceived usefulness (PU), and facilitating conditions in influencing the actual usage of HRIS. Notably, hypotheses H7 and H10 emphasized the importance of compatibility and observability in shaping employees' perceptions of PU and PEOU, while H11 highlighted the significant impact of social influence on behavioural intention.

Conversely, five hypotheses (H4, H5, H6, H8, and H9) were rejected, indicating that relative advantage did not significantly influence PU or PEOU, and that compatibility and observability did not fully impact PEOU and PU, respectively. These rejections suggest potential areas for further research, particularly in exploring the role of communication and user experience in driving these relationships.

By integrating DIT, TAM, and UTAUT, this study not only advances theoretical understanding, but also provides actionable insights for HRM professionals seeking to improve the implementation of HRIS in remote and hybrid work contexts. The research contributes to the ongoing discourse on technology adoption strategies in HRM and equips practitioners to optimize HRIS usage in the evolving workplace landscape.

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PREDIKTORI STVARNE UPORABE INFORMACIJSKIH SUSTAVA ZA UPRAVLJANJE LJUDSKIM RESURSIMA (HRIS) OD STRANE ZAPOSLENIKA U KONTEKSTU RADA OD KUĆE I HIBRIDNOG RADA: INTEGRACIJA TEORIJE DIFUZIJE INOVACIJA, TAM-A I UTAUT-A

SAŽETAK

Ovo istraživanje integrira teoriju difuzije inovacija (DIT), model prihvaćanja tehnologije (TAM) i objedinjenu teoriju prihvaćanja i uporabe tehnologije (UTAUT) s ciljem istraživanja čimbenika koji prethode stvarnoj uporabi informacijskih sustava za upravljanje ljudskim resursima (HRIS) od strane zaposlenika u kontekstu rada od kuće (WFH) i hibridnog rada. U istraživanju je prikupljeno ukupno 274 iskoristiva odgovora zaposlenika iz deset softverskih poduzeća u Šri Lanki. Za analizu podataka korištena je metoda modeliranja putem parcijalnih najmanjih kvadrata (PLS), odabrana zbog nenormalne raspodjele podataka. Rezultati istraživanja pokazuju da uočljivost pozitivno utječe na percipiranu jednostavnost uporabe (PEOU) HRIS-a u WFH i hibridnim kontekstima. Kompatibilnost se pokazala kao najvažnija značajka koja utječe na percipiranu korisnost (PU). PEOU i PU, zajedno s društvenim utjecajem, doprinose oblikovanju namjere zaposlenika da koriste HRIS u kontekstima WFH i hibridnog rada. Konačno, namjera za korištenje i uvjeti potpore identificirani su kao ključne varijable koje utječu na stvarnu uporabu HRIS-a od strane zaposlenika. Važno je naglasiti da ovo istraživanje, u kontekstu sve šire postpandemijske poslovne literature, predstavlja jedno od prvih koje istražuje stvarnu uporabu HRIS-a u uvjetima rada na daljinu i hibridnog rada. Dobiveni rezultati mogu poslužiti praktičarima za unaprjeđenje i optimizaciju procesa uvođenja HRIS-a.

KLJUČNE RIJEČI: *prihvaćanje HRIS-a, model prihvaćanja tehnologije, nova normalnost, teorija difuzije inovacija, objedinjena teorija prihvaćanja i uporabe tehnologije*