The Acceptance of Human Resource Information System (HRIS) Usage for Small and Medium-sized Enterprises (SMEs) in Bangkok and Surrounding Area

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Abstract

This research aimed to: 1) investigate the levels of opinion on factors influencing technology acceptance, 2) analyze the relationships between these acceptance variables, and 3) test the goodness-of-fit of a causal relationship model for the adoption of Human Resource Information Systems (HRIS) in Bangkok and its surrounding areas. A mixed-methods approach, combining quantitative and qualitative methodologies, was employed. For the quantitative component, a survey was administered to a sample of 500 entrepreneurs from Small and Medium-sized Enterprises (SMEs) via online questionnaires. The collected data were analyzed using descriptive statistics and Structural Equation Modeling (SEM) with AMOS software. For the qualitative component, semi-structured, in-depth interviews were conducted with 30 key informants. The findings revealed that the sample group held a highly positive opinion regarding the use of ready-made software. The factors with the most significant weights were effectiveness (0.935), perceived ease of use (0.945), intention to use (0.935), and usage behavior (0.935). Users perceived that the system helped reduce costs, save time, minimize errors, and enhance decision-making accuracy, while also effectively supporting future analysis and planning. Furthermore, the model's fit with the empirical data was deemed acceptable across all measured indices (CMIN/df = 1.977, CFI = .984, NFI = .968, TLI = .982, RMSEA = .044). Hypothesis testing confirmed that all proposed hypotheses were supported, indicating the model's suitability in explaining the acceptance behavior of HRIS within the context of SMEs in the studied region. These findings contribute to the HRIS adoption literature by providing an empirically validated model that integrates system effectiveness with traditional technology acceptance factors, specifically tailored to the unique operational context of SMEs in an emerging urban economy.

Keywords: 1) Human Resource Information System 2) Small and Medium-sized Enterprises 3) Technology Acceptance

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Introduction

Small and Medium-sized Enterprises (SMEs) are pivotal to national economies, contributing substantially to both economic value creation and employment. In Thailand, SMEs represent a cornerstone of the economic structure, accounting for over 35% of the country's Gross Domestic Product (GDP) and employing up to 71% of the workforce (Loetnithat and Potranandana, 2024, p. 2). Given the rapidly evolving organizational landscape and increasing global competition, SMEs must strategically adopt information technology to enhance operational efficiency and maintain their competitive edge.

A critical area for technological integration is human resource management through Human Resource Information Systems (HRIS). HRIS are specialized information systems designed to process human resource data to facilitate management decision-making and enable the extraction of pertinent information. These systems are instrumental in storing, analyzing, retrieving, and disseminating human resource management information throughout an organization. More than just a computer and software package, HRIS integrates hardware, software, and diverse personnel data to support a wide array of human resource activities, ranging from administrative tasks to strategic planning (Abuhantash, 2023, pp. 239–245).

Despite the recognized importance of HRIS, empirical evidence on the specific factors influencing its effective utilization remains limited, especially within the context of SMEs in emerging economies likeThailand. Current academic literature on HRIS acceptance often lacks comprehensive insights into the unique challenges and determinants critical for successful technology adoption within this sector. Moreover, the complexity and limitations of existing theoretical frameworks, each with inherent weaknesses, present a significant challenge for practitioners and researchers alike (Bayraktaroglu, et al., 2019, pp. 48–66). This research gap hinders the development of targeted initiatives to promote technology acceptance in SME human resource departments.

Therefore, this study investigates the factors influencing the effective utilization of HRIS within SMEs located in Bangkok and its surrounding areas. The research aims to ascertain the extent of HRIS technology adoption, evaluate the effectiveness of its usage, and identify the key determinants of adoption. By proposing a conceptual model that elucidates structural effects, this study seeks to bridge the existing gap in HRIS acceptance research. The findings are intended to provide actionable guidelines for enhancing HR management efficiency and making a substantial contribution to the literature on technology adoption by SMEs.

Research Objectives

1. To assess the perceptions of Small and Medium-sized Enterprise (SME) entrepreneurs in Bangkok and its surrounding areas regarding the factors influencing the acceptance of Human Resource Information Systems (HRIS).

2.To analyze the interrelationships among the variables affecting the acceptance of HRIS by SME entrepreneurs in Bangkok and its surrounding areas.

3.To validate the consistency of the proposed causal relationship model for HRIS acceptance within SMEs in Bangkok and its surrounding areas.

Literature Review

Concepts of Human Resource Management Information Systems

In the contemporary era of globalization, the rapid advancement of information technology occurs amidst intense competition, particularly within the business environment (Huang and Martin, 2013, pp. 621-642). Consequently, organizations must operate with high levels of effectiveness and efficiency to ensure their sustainability. The availability of accurate, relevant, and timely information is paramount for making strategic management decisions that are congruent with the information systems implemented within each organization. Recognizing this imperative, the management of information systems has become a vital function for all organizations. (Abuhantash, 2023, pp. 239–245) posits that Human Resource Information Systems (HRIS) play a crucial role in augmenting the efficiency and effectiveness of human resource management in modern organizations. An HRIS is a digital platform that integrates information systems with human resource processes to systematically store, manage, and analyze personnel data. This integration facilitates various operations, including recruitment, training, performance evaluation, and compensation management, ensuring they are conducted with speed, accuracy, and transparency. The application of HRIS also carries strategic importance, as it can furnish management with in-depth insights to support decision-making and enable organizations to respond adeptly to change. Moreover, it contributes to enhancing organizational competitiveness, reducing administrative paperwork, improving data accuracy, fostering employee engagement, and promoting a data-driven management culture.

Effectiveness of Human Resource Management Information System Control

A Human Resource Information System (HRIS) currently serves as a pivotal tool for business organizations. It has been demonstrated that HRIS contributes to enhancing overall quality management, fostering customer loyalty, and stimulating innovation. Research by (Kumar and Parumasur 2013, pp. 567–575) indicates that HRIS significantly improves the efficiency and effectiveness of all human resource operations, encompassing payroll and benefits administration, recruitment and selection processes, and performance evaluations and employee development. Such systems alleviate the workload across various departments and optimize resource utilization, thereby simplifying task execution and completion.

Fundamentally, an HRIS is a system that integrates human resource management with information technology. It operates as a software solution designed to address human resource requirements pertaining to planning, employee data access, and adherence to organizational policies. This system functions as an online platform or software for the entry, tracking, and storage of critical information for HR departments, payroll management, and

accounting functions within an organization. Its primary role is to integrate human resource management as a foundational element, streamlining the core activities and processes of human resources through technological application.

Technology Acceptance Model

The Technology Acceptance Model (TAM), introduced by (Davis, 1986, pp. 24-41) has emerged as one of the most prevalent research models in the field of information systems. The trajectory of research on information system usage frequently employs TAM as a foundational concept to elucidate an individual's acceptance of an information system. TAM is an adaptation of the Theory of Reasoned Action (TRA), originally proposed by (Ajzen and Fishbein in 1980, pp. 157-174) (Ajzen, 2002, pp. 665-683) (Lee, Kozar and Larsen, 2003, pp. 752-780). TAM postulates that user acceptance of an information system is primarily contingent upon two key variables: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). TAM, along with its empirically validated indicators, provides a framework for measuring acceptance. Widely applied in technology acceptance research, the 'A' in TAM signifies "Acceptance" (Fatmawati, 2015, pp. 1-13). Consequently, TAM serves as an information system model that simulates how users adopt and interact with technology, thereby explaining their perceptions and utilization patterns.

Usage Behavior of Human Resource Management Software

The usage behavior of human resource management software serves as a crucial indicator for Small and Medium-sized Enterprises (SMEs) in predicting future technology acceptance . This presents an opportune moment for SMEs to evaluate and implement appropriate strategies to ensure the successful adoption of human resource management software. To elucidate the relationships between factors influencing the intention and actual behavior of using human resource management software, the following hypotheses were formulated based on the proposed conceptual model and extant literature:

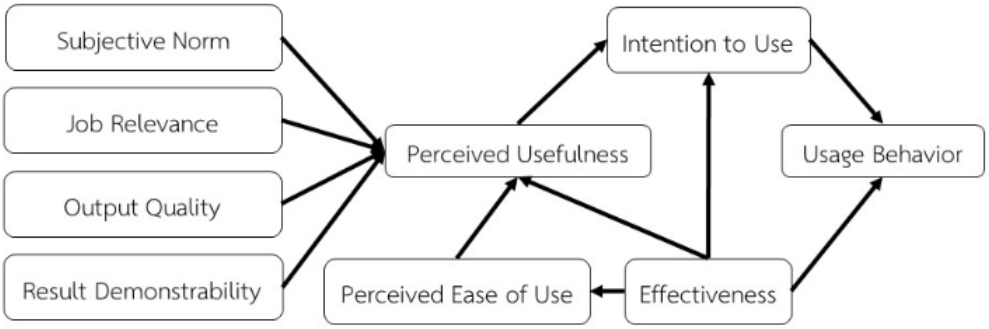

Figure 1 Research Conceptual Framework

Hypotheses

H1: The effectiveness of the Human Resource Management Information System (HRIS) positively influences the perceived ease of use of human resource management software.

H2: The effectiveness of the Human Resource Management Information System (HRIS) positively influences the perceived usefulness of human resource management software.

H3: The effectiveness of the Human Resource Management Information System (HRIS) positively influences the intention to use human resource management software.

H4: The effectiveness of the Human Resource Management Information System (HRIS) positively influences the actual usage behavior of human resource management software.

H5: The perceived ease of use of the Human Resource Management Information System (HRIS) positively influences the perceived usefulness of human resource management software.

H6: The perceived usefulness of the Human Resource Management Information System (HRIS) positively influences the intention to use human resource management software.

H7: The intention to use human resource management software positively influences its actual usage behavior.

Research Methodology

This study employed a mixed-methods research design, integrating both quantitative and qualitative approaches to comprehensively investigate the factors influencing HRIS adoption among SMEs in Bangkok and its surrounding provinces. The quantitative phase was conducted first to test the proposed model and hypotheses, followed by the qualitative phase to provide deeper insights and contextual understanding of the findings.

1) Populations and Samples

1.1 Population and Key Informants,

The target population for this study comprised Small and Medium-sized Enterprise (SME) entrepreneurs operating in Bangkok and its surrounding provinces (Nakhon Pathom, Nonthaburi, Pathum Thani, and Samut Prakan). According to the Office of Small and Medium Enterprises Promotion (OSMEP, 2024), he total number of SMEs in Bangkok was 540,564, and in the surrounding provinces (Nakhon Pathom, Nonthaburi, Pathum Thani, and Samut Prakan) was 297,234. Therefore, the total population of SMEs in the study area was approximately 837,798 enterprises.

1.2 Sample and Sampling Methods

Quantitative Phase, For the quantitative component, a purposive sampling method was utilized to select 500 SME entrepreneurs as respondents. The sample size was determined based on the recommendations of Hair, et al. (2019, pp. 170-182) for Structural Equation Modeling (SEM) to ensure high reliability and statistical power. The criteria for selecting participants included: 1) being an owner or manager of an SME, 2) having experience with or knowledge of HRIS in their organization, and 3) operating within Bangkok or its surrounding provinces. This phase aimed

to address research objectives related to investigating the levels of opinion on factors influencing technology acceptance and analyzing the relationships between these variables. Qualitative Phase, For the qualitative component, a purposive sampling method was also employed to select 30 key informants. These informants were SME entrepreneurs registered with the Department of Business Development in Bangkok and its vicinity. The selection criteria for key informants focused on their in-depth knowledge and experience regarding HRIS implementation and usage within their SMEs. This approach ensured the diversity of perspectives, consistent with Yin's (2003, p. 40) guidelines for case study research. This phase aimed to provide nuanced insights and contextual understanding, complementing the quantitative findings.

2) Research Instruments

Quantitative Research Instrument, A questionnaire was developed to collect data for the quantitative phase. The questionnaire items were designed based on the conceptual framework and relevant literature, measuring variables related to factors influencing HRIS adoption. The questionnaire underwent content validity testing by three subject-matter experts, resulting in an Index of Consistency (IOC) of 0.901, which is considered acceptable. Following a pilot test, the reliability of the entire questionnaire, as measured by Cronbach's Alpha coefficient, was determined to be 0.975.

Qualitative Research Instrument, A semi-structured interview guide was designed for the qualitative phase. The interview questions were open-ended, allowing for in-depth exploration of participants' experiences, perceptions, and insights regarding HRIS adoption. The questions were aligned with the research objectives, particularly those seeking to understand the 'how' and 'why' behind HRIS implementation and its perceived impact.

3) Data Collection

Quantitative Data Collection, Data for the quantitative research were systematically collected from the selected SME entrepreneurs in Bangkok and its surrounding areas. The questionnaires were administered online via Google Forms to facilitate efficient data collection. This method allowed for a broad reach and convenient participation from the target sample. Qualitative Data Collection, Data for the qualitative research were collected through in-depth, semi-structured interviews with the 30 key informants. The interviews were conducted to gather rich, detailed information that could not be captured through quantitative surveys. The data gathered from the interviews were subsequently verified for accuracy and completeness through transcription and member checking where appropriate.

4) Data Analysis Methods

Quantitative Data Analysis, Structural Equation Modeling (SEM) was performed using AMOS software to analyze the data (Raengsungnoen, 2011, pp. 70-75) and test the research hypotheses. This process involved both Confirmatory Factor Analysis (CFA) (Comrey and Lee, 1992, pp. 299-310). to assess the measurement model and Path Analysis (PA) to evaluate the structural relationships between variables (Hair, et al., 2019, pp. 11-29). This analysis primarily addressed research objectives 1 and 2. The

qualitative data analysis involved a systematic process to extract meaningful themes and patterns from the interview transcripts. The steps included: 1) Data Interpretation: Generating inductive conclusions by formulating sentences or statements consistent with the theoretical framework or research problem. This involved identifying recurring ideas and concepts. 2) Content Analysis: Analyzing the interview data by considering the context and environment of the discussions, categorizing information, and identifying key themes. 3) Interpretation and Presentation: Synthesizing the analyzed data to provide a comprehensive understanding of the qualitative findings, which were then presented to complement and enrich the quantitative results. This analysis primarily addressed research objective 3, providing deeper insights into the causal relationships and the overall adoption process.

Results

Quantitative Data Analysis

The quantitative phase involved a comprehensive survey of 500 respondents from SMEs in Bangkok and its surrounding areas. Regarding the professional positions of the participants, although business owners represented the largest single group (25.8%, n=129), they did not constitute the absolute majority of the sample. The remaining 371 respondents (74.2%) consisted of diverse key stakeholders and operational users, including supervisors (25.0%, n=125), managers (17.8%, n=89), and other specialized roles such as HR officers, senior HR staff, managing directors, and assistant managers, with proportions ranging from 1.6% to 13.6%. This distribution demonstrates that the data reflects a balanced perspective from both strategic decision-makers and those directly responsible for managing human resource systems.

In terms of work experience, the majority of respondents had less than 5 years of experience (41.2%, n=206), followed by those with 6-10 years (32.6%, n=163), and 11-15 years (14.8%, n=74). A smaller portion of the sample consisted of highly experienced professionals with 16-20 years (4.8%) and more than 20 years of experience (6.6%).

Regarding organizational characteristics, the majority of the establishments were small enterprises with a registered capital not exceeding 50 million baht (63.4%, n=317), while medium-sized enterprises (capital between 50 and 200 million baht) accounted for 36.6% (n=183). The service sector was the most prominent business type (43.8%, n=219), followed by manufacturing (25.4%, n=127), and various trading sectors including wholesale and retail. In terms of workforce size, 33.8% of the businesses employed more than 80 people, while smaller firms with 11-20 employees (20.8%) and 1-10 employees (19.6%) were also well-represented. Geographically, the establishments were concentrated in Central Bangkok (27.8%), Inner Bangkok (25.6%), and Samut Prakan (23.6%). Finally, a significant majority of the respondents (71.8%, n=359) reported prior experience with Human Resource Information Systems (HRIS), indicating a high level of familiarity with the technology under study.

A path analysis was conducted to examine the relationships among variables,

including Perceived Usefulness (PU), Subjective Norm (SN), Job Relevance (JR), Result Demonstrability (RD), Output Quality (OQ), Perceived Ease of Use (PEOU), Effectiveness (EFF), Intention to Use (INT), and Usage Behavior (UB). Data from 500 samples were analyzed using AMOS, a Covariance-Based Structural Equation Modeling (CBSEM) program. The analysis employed the Maximum Likelihood estimation method to assess the fit between the covariance structure based on empirical data and the theoretical model. A key statistical criterion for model fit is that the p-value should be greater than 0.05, indicating non-significance. Upon evaluation, the empirical model demonstrated consistency with the theoretical model, as detailed in Table 1.

Table 1 Goodness-of-fit indices for the structural model of the acceptance of human resource management software

Goodness-of-fit Index	Value Indicating Fit	Model Analysis Result	Assessment
CMIN/df	$0 < \chi 2 /df \leq 2$	1.977	Pass
CFI	0.97< CFI ≤1.00	.984	Pass
NFI	0.95< NFI ≤1.00	.968	Pass
TLI	0.95 < TLI ≤1.00	.982	Pass
RMSEA	0< RMSEA ≤0.05	.044	Pass

Based on the values above, it is shown that the model is appropriate and consistent with the empirical data according to the specified criteria.

Table 2 Goodness-of-fit of for each latent variable

Latent Variable	Observed Variable	Standardized Regression Weight	R^2	CR	P
Perceived Usefulness (PU)	PU	0.880	0.774		
	OQ	0.864	0.746	21.88	***
	JR	0.842	0.709	21.31	***
	RD	0.914	0.835	24.22	***
	SN	0.907	0.823	24.04	***
Perceived Ease of Use (PEOU)	PEOU1	0.932	0.868	40.79	***
	PEOU2	0.922	0.850	39.25	***
	PEOU3	0.945	0.894		
Effectiveness (EFF)	EFF1	0.928	0.861	38.36	***
	EFF2	0.935	0.874	39.36	***
	EFF3	0.934	0.872		

Latent Variable	Observed Variable	Standardized Regression Weight	R^2	CR	P
Intention to Use (INT)	INT1	0.926	0.857	38.45	***
	INT2	0.935	0.875	39.84	***
	INT3	0.934	0.873		
Usage Behavior (UB)	UB1	0.935	0.874	37.91	***
	UB2	0.910	0.829	34.94	***
	UB3	0.925	0.856		

Note: *** $p \leq 0.001$, ** $p \leq 0.01$, * $p \leq 0.05$

From Table 2 shows the goodness-of-fit of the measurement model for the latent variables. When each latent variable is combined into a model, the overall results indicate that the measurement of the latent variables is statistically significant. This can be explained by each latent variable as follows:

1. Perceived Usefulness (PU) is represented by five observed variables: Perceived Usefulness (PU), Subjective Norm (SN), Job Relevance (JR), Result Demonstrability (RD), and Output Quality (OQ). The standardized regression weights for these variables ranged from 0.842 to 0.914, and their squared multiple correlations (R^2) ranged from 0.709 to 0.835. All observed variables exhibited positive values. The observed variable with the highest weight was Result Demonstrability (RD), with a weight of 0.914 and an R^2 of 0.835, followed by Subjective Norm (SN) with a weight of 0.907 and an R^2 of 0.823.

2. Perceived Ease of Use (PEOU) is characterized by three observed variables. Their standardized regression weights ranged from 0.922 to 0.945, and their squared multiple correlations (R^2) ranged from 0.850 to 0.894. All observed variables demonstrated positive values. The observed variable with the highest weight was the simplicity and non-complexity of the system (PEOU3), with a weight of 0.945 and an R^2 of 0.894. This was followed by the ease of learning and understanding (PEOU1), which had a weight of 0.932 and an R^2 of 0.868.

3. Effectiveness (EFF) comprises three observed variables: quality assurance certification (EFF1), accuracy in data recording (EFF2), and the ability to allocate more time to other tasks (EFF3). The standardized regression weights ranged from 0.928 to 0.935, and the squared multiple correlations (R^2) ranged from 0.861 to 0.874. All observed variables demonstrated positive values. The observed variable with the highest weight was accuracy in data recording (EFF2), with a weight of 0.935 and an R^2 of 0.874, followed by the ability to allocate more time to other tasks (EFF3), which had a weight of 0.934 and an R^2 of 0.872.

4. Intention to Use (INT) is measured by three observed variables: intention to recommend (INT1), the establishment's needs (INT2), and the importance of the software for work (INT3). The standardized regression weights ranged from 0.926 to 0.935, and the squared multiple correlations (R^2) ranged from 0.857

to 0.875. All observed variables demonstrated positive values. The observed variable with the highest weight was the establishment's needs (INT2), with a weight of 0.935 and an R^2 of 0.875, followed by the software's importance for work (INT3), which had a weight of 0.934 and an R^2 of 0.873.

5. Usage Behavior (UB) is assessed through three observed variables: positive trial experience (UB), comparison of features before purchase/use (UB2), and the modernity of the program (UB3). The standardized regression weights ranged from 0.910 to 0.935, and the squared multiple correlations (R^2) ranged from 0.829 to 0.874. All observed variables exhibited positive values. The observed variable with the highest weight was a positive trial experience (UB1), with a weight of 0.935 and an R^2 of 0.874, followed by the modernity of the program (UB3), which had a weight of 0.925 and an R^2 of 0.856.

In summary, all observed variables under each latent variable have positive relationship weights and relatively high R^2 values, indicating that these observed variables can explain a high level of variance in the latent variables.

The model testing results, which analyzed the impact of antecedent variables on dependent variables, elucidated the relationships within the causal model. The hypotheses were tested using AMOS, examining both direct and indirect influences, as well as the direction of the relationships between each pair of variables. The strength of these relationships was evaluated based on the standardized regression coefficients, with Effectiveness (EFF), Perceived Ease of Use (PEOU), Perceived Usefulness (PU), and Intention to Use (INT) serving as predictor variables, as illustrated in the model below in figure 2

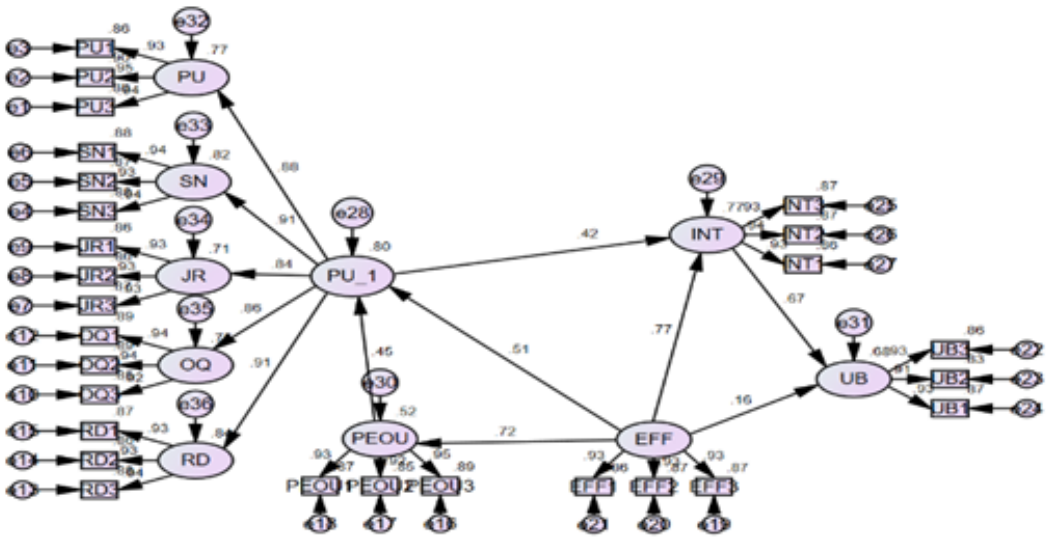

Figure 2 Path analysis results of the structural model for the acceptance of human resource management software

The model analysis indicates that the model fits the data well. The model fit indices— CMIN/df = 1.977, CFI = .984, NFI = .968, TLI = .982, RMSEA = .044 are within acceptable ranges. For model fit evaluation, the Chi-square suggests no significant difference between the model and the observed data; however, the p-value < .05 may be attributable to sample size or model complexity. The CFI, NFI and TLI values all exceed .90, reflecting a very good fit of the model to the data. The RMSEA of .066 is below .08, indicating a moderate to good level of fit. The RMSEA of .013 indicates a low level of residuals.

Direct and Indirect Effect

Table 3 Standardized coefficients of direct, indirect, and total effects between cause and effect variables

	PEOU			PU			INT			UB		
	DE	IE	TE	DE	IE	TE	DE	IE	TE	DE	IE	TE
EFF	0.72***	-	0.72***	0.51***	0.32	0.83***	0.77***	0.23	1.00***	0.16*	0.75**	0.91***
PEOU	-	-	-	0.45***	-	0.45***	-	0.14	0.14	-	0.09	0.09
PU	-	-	-	-	-	-	0.42*	-	0.42*	-	0.28	0.28
INT	-	-	-	-	-	-	-	-	-	0.67***	-	0.67***
R2	R^2 = 0.52			R^2 = 0.80			R^2 = 0.78			R^2 = 0.69		

Note: *** p ≤ 0.001, ** p ≤ 0.01, * p ≤ 0.05

Table 3 shows the effects between variables by type of influence: Direct Effect (DE), Indirect Effect (IE), and Total Effect (TE). Overall, this model can explain the variance of the dependent variables at a good to very good level, especially for the variables of perceived usefulness of the system (PU) and intention to use technology (INT), which have high R^2 values of 0.80 and 0.78, respectively. This shows that the studied factors, namely EFF, PEOU, and PU, play a significant role in creating motivation and driving the actual use of technology, both in terms of direct and indirect influences. This reflects the consistency of the model with the prototype theory and confirms the suitability of the model in effectively and reliably predicting the technology usage behavior of the sample group in the context of this research.

Hypothesis Testing Results

Hypothesis	Coefficient	p-value	Test Result
(H1) EFF -> PEOU	0.721	***	Significant
(H2) EFF -> PU	0.513	***	Significant

Hypothesis	Coefficient	p-value	Test Result
(H3) EFF -> INT	0.770	***	Significant
(H4) EFF -> UB	0.158	.020*	Significant
(H5) PEOU -> PU	0.450	***	Significant
(H6) PU -> INT	0.420	***	Significant
(H7) INT -> UB	0.668	***	Significant

Note: *** p ≤ 0.001, ** p ≤ 0.01, * p ≤ 0.05

Qualitative Data Analysis

The qualitative phase of this study, involving in-depth interviews with 30 key informants, provided a nuanced understanding of HRIS adoption within the SME sector. The analysis revealed that the acceptance of such technology is fundamentally driven by a combination of strategic vision and operational necessity. Informants consistently highlighted that the drive for digitalization often stems from top management's recognition of industry trends and the need to maintain competitiveness. As noted by a business owner (Informant #07), the transition is seen as a matter of survival: "Our management realized that to grow, we couldn't rely on manual processes anymore. The industry is moving towards cloud-based solutions, and we felt the pressure to modernize our HR functions to keep up with larger competitors and attract tech-savvy talent." This strategic alignment is further reinforced by the perceived job relevance of the system, particularly in its ability to handle complex operational tasks such as real-time attendance and multi-language data management. An HR Manager (Informant #15) emphasized this integration, stating that the HRIS has become the "backbone of our personnel administration" rather than just a supplementary tool.

Furthermore, the perceived usefulness of HRIS was closely tied to tangible economic benefits, specifically in terms of cost reduction and error minimization in payroll and tax deductions. The integration of various HR functions into a single platform not only saved significant manpower but also improved employee morale by ensuring data accuracy. A General Manager (Informant #22) highlighted this impact, noting that the system "integrates everything, saving us significant time and reducing operational costs," thereby allowing the HR department to focus on more strategic initiatives. The demonstrability of these results played a crucial role in fostering positive attitudes toward the technology. Informants reported that the ability to generate instant, accurate reports justified the investment and provided clear evidence of the system's value

to stakeholders. This was echoed by an IT Manager (Informant #11), who observed that the clarity of labor cost analyses made the investment feel "worth every baht." Ultimately, the effectiveness of the system in ensuring data security and preventing fraud was identified as a prerequisite for long-term adoption, creating a more systematic and transparent workflow that is vital for the sustainable growth of SMEs (Informant #29).

In conclusion, these qualitative insights collectively demonstrate that the successful adoption of HRIS in SMEs transcends mere technical implementation, as it is deeply rooted in the strategic alignment of the system with organizational goals and the tangible value perceived by all levels of stakeholders.

Discussion

This research aligns with various concepts and related studies on technology acceptance, particularly in the context of Human Resource Information Systems (HRIS) in Small and Medium-sized Enterprises (SMEs). The findings can be discussed as follows:

1. Effectiveness of Human Resource Management Software (EFF), which is the most influential factor in this research, is consistent with the concepts of (Abuhantash, 2023, pp. 239–245) and Bangura (2024, pp. 25-32), who highlighted the significant role of HRIS in enhancing the efficiency and effectiveness of human resource management in modern organizations. The high influence of EFF on PEOU, PU, INT, and UB indicates that when users are confident in their ability to use technology (reflecting effectiveness), it leads them to perceive the system as easy to use, useful, to have an intention to use it (Lee and Wan, 2010, pp. 40-51), and ultimately to actual usage. This aligns with the Technology Acceptance Model (TAM), which emphasizes the importance of Perceived Ease of Use and Perceived Usefulness in leading to intention and actual usage behavior.

2. Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) play crucial mediating roles in transmitting the influence from EFF to INT and UB. This is consistent with the core concept of the TAM model, which states that PEOU leads to PU, and both factors ultimately affect the intention to use. (Sasadeeong, 2023, pp. 1326–1343) research on the use of Accounting Information Systems (AIS) in SMEs also emphasizes the importance of designing user-friendly, efficient, and certified systems. These factors all support the tendency of SME entrepreneurs to accept and seriously adopt such systems, which is consistent with this research's finding that PEOU and PU are important for the intention and usage behavior of HRIS.

3. Intention to Use (INT) is a clearly direct influential variable on Actual Usage Behavior (UB). This aligns with the core concept of the TAM model, which states that "intention to use" is the primary determinant of "actual use." In the context of this research, this relationship was found to be statistically significant. These findings are also consistent with the research by (Abdullah, et al., 2020, pp. 1977–1987), which indicates that sufficient use of information technology in SMEs can create a significant competitive advantage, especially

in human resource management. Furthermore, the research finding that the effectiveness of human resource management software (EFF) is the most important factor aligns with the research by (Gomwe and Boikanyo 2023, pp. 526-530), who discussed the importance of electronic Human Resource Management (e-HRM) systems for small and medium-sized organizations (SMEs) in improving employee performance and reducing data risks. This emphasizes the necessity of adopting such systems to enhance competitiveness and contribute positively to the national economy.

Conclusion

This research successfully validated a causal relationship model for HRIS acceptance among SMEs in the Bangkok metropolitan area. The causal analysis reveals that System Effectiveness (EFF) is the most critical factor, exerting both direct and indirect influences on all variables within the model—from Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) to Intention to Use (INT) and Actual Usage Behavior (UB). Notably, the high total effect of EFF on both INT and UB underscores that when users possess confidence in their technological effectiveness, they are significantly more likely to perceive the system as user-friendly and beneficial, thereby strengthening their commitment to actual usage. Furthermore, the study confirms the pivotal mediating roles of PEOU and PU in channeling the influence of effectiveness toward intention. Specifically, the sequential path from PEOU to PU, and subsequently to INT, validates the structural integrity of the Technology Acceptance Model (TAM) in this context, demonstrating that a user-friendly experience is a fundamental precursor to perceiving strategic value, which ultimately drives the decision to adopt HRIS technology.

Theoretical Contributions

This study makes several key contributions to the existing literature on technology adoption:

1) Integration of Effectiveness into TAM: By empirically validating the role of system effectiveness as a primary antecedent to PEOU and PU, this research provides a more comprehensive framework for understanding the adoption of specialized enterprise systems like HRIS, which differs from general-purpose consumer technology.

2) Contextual Validation for SMEs: The study provides rare, large-scale empirical evidence (n=500) specifically tailored to the SME sector in an emerging urban economy. It bridges the gap in literature regarding how small-scale enterprises navigate the complexities of HR digitalization.

3) Mixed-Methods Robustness: The integration of SEM with thematic qualitative analysis offers a methodological template for future researchers to capture both the "what" (statistical relationships) and the "why" (stakeholder motivations) of technology acceptance.

Practical Implications

The findings offer actionable insights for various stakeholders involved in the SME ecosystem:

1) For SME Entrepreneurs and Managers: Adoption should be treated as a strategic investment rather than a mere IT upgrade. Leaders should prioritize systems that demon-

strate clear "effectiveness" in solving specific pain points, such as payroll errors or shift management. Furthermore, fostering a digital-ready organizational culture through continuous training is essential for long-term usage.

2) For Software Developers and Providers: To penetrate the SME market, developers must focus on "Effectiveness-led Design." This means ensuring high data accuracy and security while maintaining a user-friendly interface. Providing robust after-sales support and clear demonstrability of results (e.g., automated reporting dashboards) can significantly lower the barriers to entry for SMEs.

3) For Policy Makers: Government agencies, such as OSMEP, can use these findings to design targeted support programs that not only provide financial incentives for software purchase but also offer technical consultancy to help SMEs evaluate the "effectiveness" of various HRIS solutions.

Limitations and Recommendations

Based on the research findings and discussions above, the researcher offers the following recommendations:

1. Recommendations for SMEs

SMEs should prioritize communicating and fostering understanding of the true benefits of HRIS to employees, emphasizing its ability to reduce workload, increase accuracy, and aid in decision-making. Additionally, comprehensive and continuous training should be provided to equip employees with the knowledge and skills to effectively use HRIS. This includes providing appropriate equipment and infrastructure, and creating an environment that promotes learning and sharing HRIS usage experiences among employees.

2. Recommendations for Software

Software should be designed to be user-friendly, with an intuitive interface and functionalities that meet the specific needs of SMEs. Furthermore, robust after-sales support should be provided, including clear user manuals, diverse contact channels, and prompt problem resolution, to build user confidence.

3. Recommendations for Future Research

3.1 Further studies should explore other factors that may influence HRIS adoption in SMEs, such as organizational culture, organizational size, or different industry types. Qualitative research should be conducted to gain in-depth understanding of the experiences, problems, and challenges faced by HRIS users in SMEs, to inform the development and improvement of the system.

3.2 A comparative study on HRIS adoption between SMEs in Bangkok and its surrounding areas and SMEs in other regions should be conducted to obtain comprehensive data that can be applied more broadly.

3.3 Research should investigate the long-term impact of HRIS use on the operational efficiency and performance of SMEs to confirm the value and return on investment of this technology.

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