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Determinants of E-HRM Effectiveness in Companies in Batam City

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ABSTRAK

Penggunaan *Electronic Human Resource Management* (E-HRM) membantu perusahaan menjadi lebih efisien sebagai dampak dari ketatnya persaingan antar perusahaan dalam merekrut dan mempertahankan tenaga profesional. Namun, ditemukan bahwa terdapat permasalahan berupa ketidakterpaduan dalam penerapan sistem ini di berbagai perusahaan, yang menyebabkan terjadinya kesenjangan dalam efektivitas penggunaannya. Penelitian ini bertujuan untuk menganalisis hubungan antara faktor-faktor pendahulu (*antecedents*), niat perilaku (*behavioral intentions*), penggunaan E-HRM, dan efektivitas E-HRM. Metode penelitian yang digunakan adalah metode kualitatif, dengan populasi berupa seluruh praktisi SDM yang telah menggunakan E-HRM pada perusahaan yang berlokasi di Kota Batam, dengan pengambilan sampel secara *purposive sampling*, sehingga diperoleh sebanyak 280 responden. Hasil penelitian menyoroti pentingnya membangun lingkungan organisasi yang mendukung dan memastikan kesiapan karyawan untuk mengoptimalkan hasil dari implementasi E-HRM. Hasil uji hipotesis menunjukkan bahwa *performance expectancy* dan *effort expectancy* berpengaruh positif signifikan terhadap *behavioral intention*. *Performance expectancy* juga berpengaruh positif signifikan terhadap penggunaan E-HRM, namun *effort expectancy* tidak menunjukkan pengaruh yang signifikan terhadap penggunaan E-HRM. Secara langsung, tingkat efektivitas E-HRM dipengaruhi oleh variabel *performance expectancy*, *behavioral intention*, dan penggunaan E-HRM, tetapi tidak dapat dipengaruhi secara langsung oleh *effort expectancy*.

Kata kunci: *Performance expectancy*; *Effort expectancy*; *Behavioral intention*; Penggunaan E-HRM; Tingkat efektivitas E-HRM

ABSTRACT

The use of "Electronic Human Resource Management" (E-HRM) helps companies become more efficient as a result of the fierce competition among them to recruit and retain professional staff. However, it was found that there was an issue that the adoption of this system was not uniform in various companies, which caused a gap in the effectiveness of its use. This study aims to analyze the relationship between antecedents, behavioral intentions, E-HRM use, and E-HRM effectiveness. The research method implemented was in the form of a qualitative method, by raising the population in the form of all HR who have used E-HRM in a company located in Batam City, by sampling through purposive sampling, to obtain a sample of 280. The results of the study highlight the importance of fostering an organizational environment that supports and ensures employee readiness to optimize E-HRM results. The results of the hypothesis test indicate that performance expectancy and effort expectancy have a significant positive effect on behavioral intention. Performance expectancy had a significant positive effect on E-HRM usage, but effort expectancy could not show a significant effect on E-HRM Usage. Directly, E-HRM Efficacy Level is influenced by variables such as Performance expectancy, behavioral intention, and E-HRM usage, but cannot be directly influenced by Effort Expectancy.

Keywords: *Performance expectancy; Effort expectancy; Behavioral intention; E-HRM usage; E-HRM effectiveness level*

INTRODUCTION

Advances in information technology have provided significant changes in various aspects of business, including in the context of Human Resources Management (HRM). Currently, the company is moving to electronic human resource management (E-HRM). E-HRM usage helps companies become more efficient as a result of the fierce competition among them to recruit and retain professional staff (Ayyash et al., 2022). E-HRM turns out as a form of technology implementation into HR functions, in order to improve the efficiency and effectiveness of the company's operations. In this context, the implementation of the E-HRM system is one of the strategic steps in improving the effectiveness of human resource management (Farid et al., 2024). The use of E-HRM allows companies to manage employee data, recruitment processes, training, and electronic-based performance assessments. Furthermore, the application also able to minimize the use of costs and time taken to perform human resource management. E-HRM has emerged as an important strategy to enable strategic choices and achieve long-term competitive advantages for established businesses (Al-Harazneh & Sila, 2021). Many companies are starting to be interested in using the system in HR management, which has adequate capabilities in carrying out processes of managing various different HR functions, which include recruitment, onboarding, compensation, and performance management (Prince & Ismayani, 2023). Research shows that the implementation of E-HRM not only has an impact on operational efficiency but also contributes to the sustainability performance of the organization. E-HRM helps increase workforce productivity and create a more flexible and responsive work environment to business changes (Sentoso et al., 2024). research by (Muchsinati & Ardiansyah, 2023) shows that HR digitalization through E-HRM contributes to the national economic recovery (PEN) by increasing the efficiency and effectiveness of the workforce. This digitalization is supported by the adoption of Industry 4.0 technology which is the main strategy to increase the competitiveness of national industries, including in Batam, as being one of industrial centers in Indonesia.

Based on data from (Forde.co.id, 2024), it is known that 55% of recruitment professionals today are already using HRIS (*Human Resource Information System*) or ATS (*Applicant Tracking System*) to support the recruitment process. What's more, 19% have not used the system yet but are considering adopting it in the future. Meanwhile, only 20% have never considered using the system. While most companies rely on technology to manage their hiring process, the use of such technology is not uniform among companies. In this context, the use

of an ATS or HRIS varies depending on the size of the company. For example, only 36% of companies with fewer than 100 employees use ATS or HRIS, while in companies with more than 500 employees, its utilization rate reaches 89%. In Indonesia, the use of HRIS continues to grow. By 2023, it is estimated that around 55% of companies have implemented HRIS or ATS to manage recruitment processes and other human resource management (Forde.co.id, 2024). Data (Forde.co.id, 2024) also revealed that there was a significant increase in the adoption rate of HRIS in Indonesia in 2021-2023, especially from 2021 to 2022, where the COVID-19 pandemic encouraged a lot of companies in switching to digital solutions, resulting in an increase in HRIS adoption by 35-40%. In 2022, along with the post-pandemic recovery, companies began to stabilize and adopt new technologies, so the use of HRIS increased to 45-50%. In 2023, it is expected that digital transformation will continue, with around 55% of companies implementing HRIS to improve efficiency and effectiveness.

Batam is one of the industrial centers in Indonesia that is experiencing rapid economic growth. Many companies in Batam are starting to adopt E-HRM to increase competitiveness and productivity. Meanwhile, the implementation of E-HRM does not always run smoothly. Some companies face challenges in ensuring the effectiveness of e-HRM, which can be affected by a variety of factors, including *performance expectations* and effort *expectations* of employees. Performance expectations refer to the extent to which an individual believes that the use of a particular system will help them achieve better performance. Meanwhile, business expectations are related to the level of ease felt in using the system. These two factors can affect employees' *behavioral intention* to use e-HRM, which also has an impact on *E-HRM usage* and the effectiveness of e-HRM itself.

Significant problems in the implementation of E-HRM tend to be caused by the uneven adoption of this system in various companies, which creates a gap in the effectiveness of its use (William & Singh, 2023). Although E-HRM promises higher efficiency, better management of employee data, and the transformation of HR from an administrative function to a more strategic one, the reality is that the adoption of this technology does not occur uniformly, especially between large and small companies (Almashyakhi, 2022). Companies with a large number of employees tend to adopt E-HRM faster, because they have greater resources to manage and support the implementation of this technology, both in terms of finance, infrastructure, and HR training (Subekti & Shaddiq, 2024). In contrast, small and medium-sized companies often face bigger constraints, such as budget constraints, lack of understanding of the benefits of E-HRM, and resistance to change from employees or managers (Bhatt & Poduval, 2023). In addition, managing more complex employee data through E-HRM requires

a high level of trust in the system, and data security issues or privacy concerns are often a significant hindrance (Najam et al., 2022).

Effort expectancy refers to the extent to which the user feels that the use of E-HRM will be easy, useful, and not burdensome (Tannady & Dewi, 2024). If the E-HRM system is designed with a user-friendly interface, adequate training, and available technical support, users can feel more comfortable and ready to adopt the technology (Utomo & Kurniasari, 2021). Meanwhile, *Performance expectancy* relates to the extent to which users believe that using E-HRM will improve their performance or provide significant benefits, such as time efficiency, reduced administrative burden, or improved employee data management. If users feel that E-HRM can provide better results and make their work easier, they will be more motivated to use it consistently (Ryu & Fortenberry, 2021; Shaikh et al., 2021).

While *Behavioral intention* refers to an individual's intention or tendency to use E-HRM in the future (Utomo & Kurniasari, 2021). This factor is greatly influenced by a combination of *effort expectancy* and *Performance Expectancy*. In this context, the easier and more useful it is for users to use E-HRM, the more likely they are to intend to use the system on a regular basis (Setiadjie & Widodo, 2024). Research on *behavioral intention* help identify whether positive intentions towards the use of E-HRM will continue to be real use in the workplace (Vazques & Sunyer, 2021). Likewise with *E-HRM usage* which refers to the extent to which the E-HRM system is used in daily operations (Kurniawan, 2023). This is marked as a concrete step after the intention to use the system is disclosed (Ayyash et al., 2022). Meanwhile, the system usage does not always happen automatically, as there are various factors that can affect the extent to which E-HRM is used, such as managerial support, organizational readiness, and company culture (Al-Harazneh, 2021).

Previous research has highlighted the influence of factors that affecting E-HRM usage, as in his research Setiadjie & Widodo (2024) that discusses the influence of *performance expectancy, habit,* and *music piracy judgement* towards *behavioral intention* and *E-HRM use behavior*. The research findings revealed that *Performance Expectancy* affect *behavioral intention* significantly, and *behavioral intention* has a significant influence on *E-HRM use behavior.* Meanwhile, the study did not discuss the variable *E-HRM effectiveness level* that able to influence *E-HRM use behavior*.

Vazquez & Sunyer (2021) research proved the link between the influence of *Performance Expectancy* on the use of e-HRM, which shows a significant effect. On the other hand, the study does not address the variable *effectiveness level*, or by *effort expectancy* which is no less important in shaping efforts of E-HRM Usage. Hence, it can be stated that lack of research

exploring the role of mediation *behavioral intention* and *E-HRM usage* in the relationship between its predecessor (such as *performance* and *effort expectancy*) with E-HRM effectiveness. Although previous studies have often focused on direct correlations between variables such as *Performance Expectancy* on the implementation of E-HRM and organizational performance, and there is still a lack of understanding of how employees' behavioral intentions to use this system affect their actual use, and how its impact to the overall effectiveness of E-HRM usage.

The novelty of this study lies in the use of behavioral intention variables and the use of E-HRM as a mediating variable in the relationship between organizational antecedents and the effectiveness of E-HRM, as a topic that has not been widely explored in the existing literature. Furthermore, the study also focuses on the use of the *variable effort expectancy*, which is also marked as a crucial aspect in influencing individuals' perceptions of adopting new systems, and able to influence their intention to use the technology. In this context, if E-HRM is considered easy to use and does not require great effort to understand and operate, the users will be more likely to use it consistently.

Previous research has shown that performance expectations and business expectations have a significant influence on behavioral intentions and the use of e-HRM. For example, an empirical study in Indonesia found that performance expectations and business expectations can influence the use of e-HRM systems by employees, which in turn has a positive and significant impact on the effectiveness of HRM at the policy and practice level. Meanwhile, research that specifically explores the relationship between these factors and the effectiveness of e-HRM in the context of companies in Batam City is still limited. Therefore, this study aims to analyze the antecedents of e-HRM effectiveness, especially by focusing on the role of performance expectations, business expectations, behavioral intentions, and E-HRM usage among companies operating in Batam City (Prince & Ismayani, 2023).

The Relationship between Performance Expectancy and Behavioral Intention

It was found that positive performance expectations affect people's enthusiasm in using technology and information (Kurniawan, 2023). By examining motivation, income, and usage as a consequence of the use of information technology, there is an increasing interest on how information technology is used by users to improve its output (Shaikh et al., 2021). *Performance expectancy* refers to an extent to which users believe that by using the information in the system, their work performance will be improved (Ryu & Fortenberry, 2021). *Performance expectancy* is important at all measures of use, whether required or voluntary, and is the strongest predictor

of intent to utilize information systems (Sang et al., 2023). It was found that *Performance Expectancy* have a positive and significant influence on interest in using information technology (Najam et al., 2022). Several studies have shown that the usefulness, motivation, and benefits obtained from the use of information technology can affect users' interest in improving their performance (Anggraeni & Normasyhuri, 2024; Laksono & Darma, 2024). Based on this description, H1 of this study is *Performance Expectancy* have a significant effect on *behavioral intention*.

The Relationship Between Effort Expectancy and Behavioral Intention

The level of user comfort in using information systems is known as *Effort Expectancy* (Subhani et al., 2023). Ease of use in such information technology able to influence its application (Shaikh et al., 2021). In this context, easy-to-use technology will make people feel as if they are using a system that helps them so that they are more comfortable in using it (Ryu & Fortenberry, 2021). Based on the UTAUT paradigm, behavioral intentions to use information systems are positively influenced by the expectations of the Effort. *Effort expectancy* have a significant influence on user intent in the use of technology (Kurniawan, 2023; Alishahi et al., 2021). Based on this description, H2 of this study is *effort expectancy* have a significant effect on *behavioral intention*.

The Relationship between Performance Expectancy and E-HRM Usage

Performance expectancy refers to the extent to which users believe that the use of the E-HRM system will improve their performance, both in terms of efficiency, effectiveness, and productivity in carrying out HR tasks (Shaikh et al., 2021; Ryu & Fortenberry, 2021). Users who have high expectations for the benefits that can be obtained from using E-HRM, such as faster data management, reduced administrative burden, and ease of recruitment and employee management processes tend to use this system consistently (Al-Harazneh & Sila, 2021). On the other words, when individuals feel that E-HRM technology will make their work easier and provide better results than traditional methods, they will be more motivated to adopt and utilize the system in their daily activities (Hutabarat et al., 2021). In this context, *Performance Expectancy* not only reflects expectations for the desired results, but can also increase user confidence in using the technology (Anggraeni & Normasyhuri, 2024). Based on this description, H3 of this study is *Performance Expectancy* have a significant effect on *e-HRM usage*.

The Relationship between Effort Expectancy and E-HRM Usage

Effort expectancy refers to the extent to which individuals feel that the use of the E-HRM system will not overwhelm them and is easy to understand or use without significant difficulty (Najam et al., 2022). The lower the perception of difficulties felt by users in operating E-HRM, the higher the likelihood that the system will be used consistently (Saraswat, 2021). Research by Subhani et al. (2023) stated that *effort expectancy* has a positive influence on *E-HRM usage*. At a time when users feel that E-HRM is easy to learn and operate, they tend to feel more comfortable integrating the system into their work routines (Watters, 2021). This is important because complicated or elusive systems can create frustration or confusion, which ultimately reduces motivation and intention to use them. Instead, an intuitive system, *user-friendly*, followed with adequate training and support able to reduce adoption barriers and gain higher adoption rates (Alqudah et al., 2023). Based on this description, H4 of this study is *effort expectancy* have a significant effect on *e-HRM usage*.

Relationship between Behavioral Intention and E-HRM Effectiveness Level

Behavioral intention refers to a person's intention to use E-HRM in the future, which is influenced by their perception of ease of use (*effort expectancy*) and performance benefits (*Performance Expectancy*) of the system (Al-Harazneh, 2021). A positive intention to use E-HRM will increase the likelihood that the individual will use it consistently in their work, which in turn will influence how effectively the system is implemented in the organization (Choudhury et al., 2022). In this context, *behavioral intention* can be considered a strong predictor of *E-HRM usage*, which is one of the main indicators of *E-HRM effectiveness level* (Yaser & Silla, 2021). By the time HR employees or managers have a strong intention to use E-HRM, they are more likely to explore the full range of features and functions offered by the system, as well as engage themselves in the broader process of technology adoption (Prince & Ismayani, 2023). On the other hand, if the intention is low, even if the E-HRM system is already available and implemented, users are less likely to make full use of the system, which will reduce its effectiveness in supporting organizational goals, such as increased efficiency and better data management (Noerman et al., 2021). Based on this description, H5 of this study is *behavioral intention* have a significant effect on *E-HRM Effectiveness Level.*

Relationship between E-HRM Usage and E-HRM Effectiveness Level

E-HRM usage refers to the extent to which the E-HRM system is actively used by users, be it HR managers, HR staff, or employees involved in various HR functions such as

recruitment, performance management, payroll, and training (Al-Harazneh, 2021). The high usage rate indicates that the E-HRM system is well received and optimally utilized, which contributes directly to the *E-HRM effectiveness level***,** namely the extent to which this system has succeeded in meeting the organization's goals in improving efficiency, productivity, and quality of human resource management (Noerman et al., 2021). At the time of *E-HRM usage* high, meaning that the system is not only adopted, but also used consistently and thoroughly in various HR processes (Nurimansjah et al., 2023). Regular and optimal use of the system allows organizations to take advantage of the full potential of E-HRM, such as process automation, more accurate data management, more effective performance monitoring, and improved communication between employees and managers (Najam et al., 2022). Thus, the higher the level of use of E-HRM, the more likely it is that the organization will experience significant benefits from the system, which in turn increases its effectiveness (Yaser & Silla, 2021). Based on this description, H6 of this study is *E-HRM Usage* have a significant effect on *E-HRM Effectiveness Level.*

The Relationship between Performance Expectancy and E-HRM Effectiveness Level

Performance expectancy is the extent to which users believe that by using the information in the system, their work performance will be improved (Ryu & Fortenberry, 2021). *Performance expectancy* is important at all measures of use, whether required or voluntary, and act as the strongest predictor of technology usage intention (Saraswat, 2021). In this context, the higher the *Performance Expectancy*, the more likely the user will be actively involved in the use of the system, which ultimately contributes to the *E-HRM effectiveness level* (Watters, 2021). E-HRM systems that are considered to provide immediate and tangible benefits in improving operational performance, such as automating the hiring process, managing employee data more structured, or improving accuracy in performance appraisals, will increase user confidence that the technology is effective and useful. This belief can encourage users to optimize the system, which can have an impact on improving the effectiveness of E-HRM as a whole (Tannady & Dewi, 2024; Fedorko et al., 2021). Based on this description, H7 of this study is *Performance Expectancy* have a significant effect on *E-HRM Effectiveness Level.*

The Relationship between Effort Expectancy and E-HRM Effectiveness Level

Effort expectancy refers to the extent to which users feel that the use of E-HRM will not burden them, i.e. the system is easy to understand, learn, and operate without requiring excessive effort (Utomo & Kurniasari, 2021). When the E-HRM system is designed with a *user-*

friendly, simple process, and adequate training support, then users will feel more comfortable and not feel burdened by the technology (Tannady & Dewi, 2024). This feeling will increase the intention to continue using the E-HRM system regularly and optimally (Fedorko et al., 2021). The higher the *effort expectancy*, the more likely it is that the E-HRM system will be widely used throughout the organization (Sang et al., 2023). Users who find E-HRM easy to use tend to adopt it faster, will be more open to integrate the system into various HR processes (Kurniawan, 2023). Based on this description, H7 of this study is *effort expectancy* have a significant effect on *E-HRM Effectiveness Level.* Based on the description above, the model of this research is as follows:

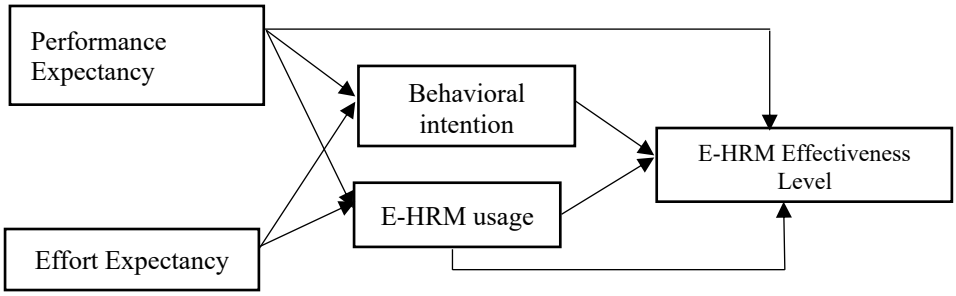


Figure 1. Research Model
Source: Results of Researcher's Thoughts, 2024.

RESEARCH METHODS

This study adopts a quantitative research design that emphasizes the quantity of data rather than the quality of the tested data (Duryadi, 2021). The data were tested using statistical methods, precisely by using a structural equation modeling (SEM) approach to analyze the relationship between antecedents, behavioral intentions, E-HRM use, and E-HRM effectiveness. The population of this study is in the form of all HR in companies in Batam City that implement E-HRM. Meanwhile, the research sample raised by the researcher was carried out on the basis of *Purposive Sampling*, which is a sampling technique based on certain criteria or requirements raised by the researcher (Andrew, 2021), where companies in Batam City that implement E-HRM fill out a research questionnaire of 280 people, where the selection of the number of samples is based on the assumption that The assumption that 1 item can be used to measure 10 respondents, so that with the number of items as many as 28, the number of respondents who can meet the qualifications is 280.

The data collection techniques intended for this study are carried out through questionnaire activities. The questionnaire provided may contain questions that are closed-ended. In each closed question, it is given with a question that is measured on a scale of 1-5 from strongly disagreeing to strongly agreeing. Furthermore, the data that has been collected

is then continued with a periodic analysis process in conveying the answers to research problems, which utilize descriptive and inferential analysis techniques. Descriptive statistical analysis is stated as an approach intended to describe the description of the data that is measured through mean, variation, standard deviation, minimum, maximum, sum, kurtosis, and *Range* (Hair Jr et al., 2021). Meanwhile, inferential analysis is carried out using program called SEM-PLS (*Structural Equation Modeling*) which is also a model of structural equations. This is in the form of statistical techniques aimed at carrying out the process of testing statistical models in the form of causal testing (Hair Jr et al., 2021). Data processing techniques with SEM-PLS have been proven to provide accurate results in identifying the relationship between competence, innovation, and employee performance in various organizations (Mon et al., n.d.). The model is marked as able to identify, observe, and form a complete structural model. In this case, the researcher conducted *Outer Model* and *inner model* test. *Outer Model* test is related to validity and reliability tests. Meanwhile, the *inner model* test is aimed at identifying the relationships formed between the variables, especially through testing *path-coefficient, indirect effect, R-Square* and *Standardized Root Mean Square Residual.*

RESULTS AND DISCUSSION

Data obtained from 280 respondents indicated that 175 respondents were male (62.5%), and another 105 people (37.5%) were female. Then, by age, the largest group of respondents, or 42.9% aged 31-40 years, followed by 30.7% of respondents over 40 years old, and 26.4% of respondents aged between 20-30 years. Regarding their last education, the most respondents (60.7%) had their last bachelor's education (S1), followed by 25.7% of respondents with the last education of Master's (S2), 8.9% of respondents with a diploma (D3), and 4.6% of other respondents with their last high school/vocational education. All respondents (280 people) who filled out this research questionnaire can be intended for the purposes of this research since they have used E-HRM in workplace.

Table 1. Respondent Description

Criterion	Category	Frequency	Percentage
Gender	Men	175	62,5%
	Woman	105	37,5%
	Total	280	100.0%
Age	20-30 years old	74	26,4%
	31-40 years old	120	42,9%
	>40 years	86	30,7%
	Total	280	100.0%
Last education	High School/Vocational School	13	4,6%
	Diploma D3	25	8,9%
	Bachelor S1	170	60,7%
	Master's S2	72	25,7%
	Total	280	100.0%
Whether the company where the respondent works already uses e-HRM	Yes	280	100.0%
	Not	0	0.0%
Total		280	100.0%

Source: Data processed by researchers, 2024

The following Table 2 shows the results of validity testing using *convergent validity* indicates that all items have an outer loading value above 0.70, so all items are declared valid (Thursday et al., 2020).

Table 2. *Convergent Validity Test Results*

Items	Behavioral Intention	E-HRM Effectiveness Level	E-HRM Usage	Effort Expectancy	Perfomance Expectancy
BI1	0.834				
BI2	0.812				
BI3	0.803				
BI4		0.852			
BI5		0.825			
BI6		0.878			
EE1		0.831			
EE2		0.800			
EE3				0.801	
EE4				0.784	
EL1				0.827	
EL2				0.807	
EL3			0.814		
EL4			0.809		
EL5			0.790		

Items	Behavioral Intention	E-HRM Effectiveness Level	E-HRM Usage	Effort Expectancy	Perfomance Expectancy
EL6			0.813		
EL7			0.809		
EL8				0.811	
HU1				0.814	
HU2				0.825	
HU3				0.784	
HU4				0.821	
HU5					0.818
HU6					0.766
PE1					0.824
PE2					0.844
PE3					0.802
PE4					0.817

Source: Data processed by researchers, 2024

Test *Discriminant Validity* through *Fornell-Larcker Criterion* indicates that each variable have an AVE value above 0.50, so the validity of discrimination is acceptable (Hair Jr et al., 2021). Reliability tests using *Composite Reliability* and *Cronbach's Alpha* shows that all values are above 0.70, indicating that all constructs in this study are reliable.

Based on Table 3, it can be seen that the AVE value of each construct in this study meets the criteria for *discriminant validity*, which shows a value exceeding 0.5. This is supported by the results *of the Cross Loadings* test as follows.

Table 3. *Fornell Larcker Criterion Test Results*

Variable	Behavioral Intention	E-HRM Effectiveness Level	E-HRM Usage	Effort Expectancy	Perfomance Expectancy
Behavioral Intention	0.691				
E-HRM Effectiveness Level	0.615	0.690			
E-HRM Usage	0.635	0.645	0.755		
Effort Expectancy	0.744	0.752	0.647	0.790	
Perfomance Expectancy	0.704	0.724	0.719	0.711	0.745

Source: Data processed by researchers, 2024

Table 4. ***Cross Loadings Test Results***

Items	Behavioral Intention	E-HRM Effectiveness Level	E-HRM Usage	Effort Expectancy	Perfomance Expectancy
BI1	0.877	0.738	0.810	0.781	0.821
BI2	0.892	0.790	0.867	0.826	0.814
BI3	0.824	0.694	0.791	0.710	0.742
BI4	0.850	0.701	0.785	0.703	0.903
BI5	0.829	0.713	0.852	0.737	0.817
BI6	0.785	0.742	0.859	0.744	0.832
EE1	0.782	0.766	0.854	0.763	0.901
EE2	0.741	0.879	0.752	0.770	0.847
EE3	0.791	0.910	0.776	0.805	0.746
EE4	0.763	0.910	0.732	0.835	0.731
EL1	0.845	0.739	0.878	0.738	0.798
EL2	0.764	0.699	0.855	0.741	0.814
EL3	0.778	0.719	0.867	0.743	0.884
EL4	0.847	0.729	0.841	0.794	0.848
EL5	0.871	0.757	0.890	0.819	0.847
EL6	0.798	0.775	0.851	0.790	0.833
EL7	0.796	0.776	0.854	0.793	0.835
EL8	0.794	0.777	0.857	0.796	0.836
HU1	0.792	0.779	0.860	0.800	0.837
HU2	0.791	0.780	0.863	0.803	0.839
HU3	0.789	0.781	0.866	0.806	0.840
HU4	0.787	0.782	0.869	0.809	0.842
HU5	0.785	0.783	0.872	0.812	0.843
HU6	0.783	0.784	0.875	0.815	0.844
PE1	0.781	0.785	0.878	0.819	0.846
PE2	0.780	0.786	0.881	0.822	0.847
PE3	0.778	0.787	0.884	0.825	0.848
PE4	0.776	0.788	0.887	0.828	0.850

Source: Data processed by researchers, 2024

Based on Table 4, it can be seen that the value of each construct has a value more than 0.7, so it is said that this construct has a good *Cross Loading* value. Furthermore, the researcher also conducted an HTMT ratio test with the following results.

Table 5. HTMT Test Results

Variable	Behavioral Intention	E-HRM Effectiveness Level	E-HRM Usage	Effort Expectancy	Perfomance Expectancy
Behavioral Intention					
E-HRM Effectiveness Level	0.866				
E-HRM Usage	1.014	0.978			
Effort Expectancy	0.790	1.097	1.045		
Perfomance Expectancy	0.881	0.789	0.653	1.282	

Source: Data processed by researchers, 2024

Based on Table 6, it can be seen that the AVE value is > 0.5 which means that all indicators have met the criteria. Furthermore, the conditions used to assess the reliability of the construct are *Cronbach's Alpha* and *Composite Reliability* > 0.7 so that it can be accepted for the research conducted.

Based on Table 7, the value *of Cronbach's Alpha* and *Composite Reliability* > 0.7, indicating that all indicators in this study are said to be reliable and the questionnaires of this study are considered consistent.

Based on Table 5, it can be seen that the value obtained from *Heterotrait-Monotrait Ratio* (HTMT) smaller than 0.90 is only a variable *Effort Expectancy* and *Performance Expectancy* towards *E-HRM Usage,* so that the validity of discrimination can be accepted. Meanwhile, other variables have a value of more than 0.90 so the validity of discrimination is unacceptable. The next criteria are *Discriminant Validity*. In this context, a construct seem to have a good value if the obtained *Average Variance Extracted* (AVE) > 0.5 (Thursday et al., 2020).

Table 6. AVE Score Test Results

Variable	Average Variance Extracted (AVE)
Behavioral Intention	0.684
E-HRM Effectiveness Level	0.682
E-HRM Usage	0.596
Effort Expectancy	0.604
Perfomance Expectancy	0.614

Source: Data processed by researchers, 2024

Table 7. Composite *Reliability* and *Cronbach's Alpha Test Results*

Variable	Cronbach's Alpha	Composite Reliability
Behavioral Intention	0.728	0.807
E-HRM Effectiveness Level	0.758	0.828
E-HRM Usage	0.769	0.846
Effort Expectancy	0.737	0.818
Perfomance Expectancy	0.796	0.903

Source: Data processed by researchers, 2024

One of the tests in the *inner model* is *the Path Coefficients test* (a direct test between research variables without going through a mediator. In this case, a relationship is declared significant if it has a statistical T test value of > 1.96, and P values < a significance value of 0.05.

Table 8. Path *Coefficients Test Results*

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Performance Expectancy -> Behavioral Intention	0.188	0.186	0.054	2.128	0.034
Effort Expectancy -> Behavioral Intention	0.312	0.314	0.066	4.013	0.000
Performance Expectancy -> E-HRM Usage	0.329	0.328	0.058	6.183	0.000
Effort Expectancy -> E-HRM Usage	0.124	0.125	0.067	1.716	0.073
Behavioral Intention -> E-HRM Effectiveness Level	0.636	0.636	0.045	4.562	0.000
E-HRM Usage -> E-HRM Effectiveness Level	0.740	0.740	0.038	3.907	0.000
Performance Expectancy -> E-HRM Effectiveness Level	0.741	0.742	0.041	4.588	0.000
Effort Expectancy -> E-HRM Effectiveness Level	0.842	0.843	0.037	0.918	0.192

Source: Data processed by researchers, 2024

Table 8 above stated the result of hypothesis testing conducted using the SEM-PLS method. Relationship between variables *Performance Expectancy* towards *behavioral intention* has a coefficient value of 0.188 with a t-statistic of 2.128 and a P-value: 0.034. These results indicate that the relationship between *Performance Expextancy* towards *behavioral intention* It is proven significant where in this case the first hypothesis is accepted. The results of this study support his findings (Sang et al., 2023) that *Performance Expectancy* is important at all sizes of use, whether required or voluntary, and is the strongest predictor of intent to take advantage of technology. Likewise with the research (Najam et al., 2022) which reveals that *Performance Expectancy* has a positive and significant influence on interest in using E-HRM technology.

The results of the second hypothesis test show that there is a significant relationship between *Effort Expectancy* towards *behavioral intention.* This can be seen from the coefficient

value of 0.312 with a T-statistic of 4.013 and a P-value of 0.000. The results of this study support his findings (Kurniawan, 2023; Alishahi et al., 2021) that *effort expectancy* has a significant influence on user intent in the use of E-HRM technology. The results of this study also confirm that when individuals feel that the system does not require great effort to learn and use, they are more likely to intend to use it in daily operations. On the other words, the easier a system is to use, the more likely it is that individuals will intend to use it.

The results of the third hypothesis test showed a coefficient value of 0.329 with a T-statistic value of 6.183 and a P-value of 0.000. This proves that the third hypothesis is accepted where *Performance Expextancy* have a significant relationship to *E-HRM usage*. The results of this study support his findings (Hutabarat et al., 2021) that E-HRM technology will make their work easier and provide better results than traditional methods, they will be more motivated to adopt and utilize the system in their daily activities.

Results of testing the relationship between *effort expectancy* towards *E-HRM Usage* showed a coefficient value of 0.124 and a T-statistic value of 1.716 with a P-value of 0.073. This result proves that the fourth hypothesis is rejected which means that there is no significant influence between *effort expectancy* towards *E-HRM usage.* The results of this study contradict his findings (Saraswat, 2021) that the lower the perception of difficulties felt by users in operating E-HRM, the higher the likelihood that the system will be used consistently. This research is also not in line with the results of the research by Subhani et al. (2023) stated that *effort expectancy* has a positive influence on *E-HRM usage*. This discrepancy in findings is possible because even though the system is considered easy to use, other factors such as organizational culture or managerial policies can affect how often the system is used.

Furthermore, the results of the fifth hypothesis test related to the relationship between *behavioral intention* towards *E-HRM Effectiveness Level* showed a coefficient value of 0.636 with a t-statistic value of 4.562 and a P-value value of 0.000. These results prove that the fifth hypothesis in this study is accepted. Means *behavioral intention* has a significant influence on *E-HRM Effectiveness Level.* The results of this study are in line with his findings (Choudhury et al., 2022) that a positive intention to use E-HRM will increase the likelihood that the individual will use it consistently in their work, which in turn will affect how effectively the system is implemented in the organization.

Influence test results *E-HRM usage* towards *E-HRM Effectiveness Level* showed a coefficient value of 0.740 with a T-statistic value of 3.907 and a P-value of 0.000. These results prove that there is a significant relationship between *E-HRM usage* towards *E-HRM Effectiveness Level*, or in other words the sixth hypothesis is accepted. The higher the level of

use of E-HRM, the higher the effectiveness. The results of this study support his findings (Noerman et al., 2021) that the high usage rate indicates that the E-HRM system is well received and optimally utilized, which contributes directly to the *E-HRM effectiveness level*, namely the extent to which this system has succeeded in meeting the organization's goals in improving efficiency, productivity, and quality of human resource management.

The results of the seventh hypothesis test show that there is a significant influence between *Performance Expectancy* towards *E-HRM effectiveness level.* This can be seen from the results of testing the data between these variables with a coefficient value of 0.741 and a t-statistic value of 4.588 and a P-value of 0.000. Thus, the hypothesis The seventh was proven to be accepted. The results of this study are in line with his findings (Tannady & Dewi, 2024; Fedorko et al., 2021) that E-HRM systems that are considered to provide immediate and tangible benefits in improving operational performance, such as automating the hiring process, managing more structured employee data, or improving accuracy in performance appraisals, will increase user confidence that the technology is effective and useful. This belief can encourage users to optimize the system, which can have an impact on improving the effectiveness of E-HRM overall.

The results of the hypothesis test between *effort expectancy* towards *E-HRM effectiveness level* indicates that there is no significant relationship. This can be seen from the coefficient value of 0.842 and the T-statistic value of 0.918 with a P-value of 0.192. These results prove that the eighth hypothesis was rejected. The results of this study contradict the findings (Sang et al., 2023) that the higher the *effort expectancy*, the more likely it is that the E-HRM system will be widely used throughout the organization. This is also not in line with his research (Kurniawan, 2023) who said that users who find E-HRM easy to use tend to adopt it faster, take advantage of all existing features, and are more open to integrating this system into various HR processes. Other factors such as management support and organizational readiness may have a greater influence on the effectiveness of the system than simply its ease of use.

The next test is in the form of a test *R Square*. The R^2 value functions in measuring the degree of variation of the change of the independent variable to the dependent variable. R^2 values of 0.67, 0.33, and 0.19 can be considered strong, moderate, and weak respectively (Thursday et al., 2020).

Table 9. R-Square Value Test Result (R2)

Variable	R Square	R Square Adjusted
Behavioral Intention	0.502	0.498
E-HRM Effectiveness Level	0.523	0.519
E-HRM Usage	0.611	0.607

Source: Data processed by researchers, 2024

Based on Table 9, the *R-square* value in the *Behavioral Intention* variable of 0.498 or 49.8% of this variable is influenced by independent variables such as *performance expectancy* and *effort expectancy*, while the proportion of 50.2% is influenced by other factors outside this study. Then, it was found that the variables of *Performance Expectancy* and *Effort Expectancy* for *E-HRM Usage* were 0.519 or 51.9%. This shows that 51.9% of this variable is influenced by the Performance *Expectancy* and *Effort Expectancy* variables and the other 48.1% is influenced by other factors outside this study. Then, it was found that the magnitude of the influence of E-HRM *Usage* and *Behavioral Intention* on the E-HRM *Effectiveness Level* was 0.607 or 60.7%. This shows that the value of 60.7% of this variable is influenced by the variables E-HRM *Usage* and *Behavioral Intention* and the other 39.3% is influenced by other factors.

Furthermore, the *Quality index* test is intended to determine the goodness of the research model constructed by the researcher. In this case, quality testing is measured using SMARTPLS, with an index called *goodness of fit,* which refers as a form of testing the comparison of the covariant matrix model with the observed values. The *goodness of fit* value is considered low if the obtained value is between 0.10 and 0.25; medium if the value is between 0.25 and 0.36; and high if the value is > 0.36 (Hanafi, 2016). In line with these criteria, the GoF index obtained in this study is 0.587 (high quality), which is obtained from the following calculations:

$$GoF\ Index = \sqrt{Average\ AVE\ x\ Average\ R^2} \quad (1)$$

$$Average\ AVE = \frac{0.684+0.682+0.596+0.604+0.614}{5} = 0.636$$

$$Average\ R2 = \frac{0.498+0.519+0.607}{2} = 0.541$$

$$GoF\ Index = \sqrt{0.636\ x\ 0.541}$$

$$\mathbf{GoF\ Index = 0.587}$$

Based on the results of the GoF above, the model used has strong predictive ability and can explain most of the variability that occurs in the relationship between antecedents,

behavioral intentions, E-HRM use, and E-HRM effectiveness. This GoF value shows that the model used in this study is more accurate in describing the phenomenon studied. These results indicate that factors such as performance expectancy, effort expectancy, behavioral intention, and E-HRM usage show a strong contribution in determining the effectiveness of E-HRM systems in Batam companies.

CONCLUSIONS AND SUGGESTIONS

The results confirm that *behavioral intention* and *E-HRM usage* are important mediators that connect antecedents with actual use of E-HRM systems, and the use of E-HRM directly increases the overall effectiveness of the system. These findings highlight the importance of fostering a supportive organizational environment and ensuring employee readiness to optimize E-HRM outcomes. The results of the hypothesis test indicate that *performance expectancy* and *effort expectancy* have a significant positive effect on *behavioral intention. Performance expectancy* had a significant positive effect on *E-HRM usage,* but *effort expectancy* could not show a significant effect on *E-HRM Usage.* Directly, *E-HRM Efficacy Level* is influenced by variables such as *Performance expectancy, behavioral intention,* and *E-HRM usage,* but cannot be directly influenced by *Effort Expectancy.*

Meanwhile, this study is not free from limitations, for example related to limitations in terms of sample measurements in industries in the geographical area of Batam City, which able to minimize the ability to generalize findings in other contexts. The *cross-sectional* nature of the research hinders the analysis of how relationships evolve over time. Then, self-reported data can lead to measurement bias, as employees' perceptions of E-HRM usage may not be fully aligned with actual usage. Furthermore, the study focuses primarily on internal factors and does not take in account external influences, such as economic or legal conditions.

The researcher made a recommendation that future researchers can apply a longitudinal research design to observe changes in behavioral intentions and the use of E-HRM over time. Researchers can also expand the sample to other industries or regions will improve the ability to generalize findings, as well as explore external factors, such as economic and regulatory conditions, that can affect the success of the E-HRM system. Meanwhile, organizations can also invest in efforts to improve *performance* and *effort expectancy* among HR practitioners, which also able to affect behavioral intentions and E-HRM usage, which later be a factor influencing the effectiveness of E-HRM.

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