

Implementation of Technology Acceptance Model (TAM) In MyHR System PT Infineon Technologies Batam

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Abstract. *The purpose of this study is to investigate the application of the Technology Acceptance Model (TAM) to the MyHR system at PT Infineon Technologies Batam. Through the analysis of Perceived Ease Of Use, Perceived Usefulness, and Attitude Toward Using, this study aims to understand how these factors influence the acceptance and adoption of the system by employees. The population in this study includes all individuals who use the MyHR system in submitting work certificates. The sample of this study was 100 people who were determined using the Slovin formula. Quantitative methods were used to collect data through questionnaires distributed to employees. The results showed that perceived ease and usefulness had a positive impact on the acceptance of the MyHR system, while user attitude did not significantly affect acceptance.*

Keywords: *Technology Acceptance Model, Human Resources Information System, Certificate of Employment.*

1 Introduction

PT Infineon Technologies Batam is a semiconductor entity originating from Germany and has been operating since April 1996. Its main products include integrated circuit development for various segments, including DRAM, serial memory, interconnect components, automotive and industrial solutions, and smart card technology. The company has understood the importance of information technology in managing company operations, especially in employee management. Currently, they still use manual procedures in managing employee data and satisfying employee needs, but they realize that the adoption of information technology, such as digitizing employment certificates, can improve efficiency, accessibility, and reduce the risk of human error.

Certificate of employment is an official letter issued by a company that is used as genuine evidence of a person's work experience in the business entity. [1] in the Smart Book of Human Resource Development, work certificates must be published as a thank you to employees for their dedication, contribution and loyalty to the company.

The manual process of applying for work certificates often takes a long time, is prone to errors, and is difficult to track employee history. Therefore, there is a need for a Human Resources System (HRIS) system that can help simplify and speed up the process of applying for a work certificate [2]. MyHR, as an adoption of HRIS, is a solution that enables efficient human resource management, including access to employee information and leave applications. By applying the Technology

Acceptance Model (TAM) to the MyHR system, it is expected to provide valuable insights in improving the efficiency of human resource management through advanced technology.

The application of the Technology Acceptance Model to the MyHR system at PT Infineon Technologies Batam, intends to identify factors that influence technology acceptance in the company. This research is expected to provide valuable insights in improving the efficiency of human resource management through advanced technology. The quality of the system, ease of use, and benefits of MyHR have a major impact on the acceptance of the use of the Human Resource Management Information System (HR MIS) [3].

2 Literature Review

2.1 Information System

[4] The Information System within an organization fulfills daily transaction management requirements, aids operations, takes on managerial duties, supports strategic initiatives, and generates reports for external stakeholders.

2.2 Human Resources Information System (HRIS)

[5] HRIS is a technology system created to gather, save, and examine data concerning employees within a company.

2.3 Technology Acceptance Model

TAM is to forecasts users' willingness to adopt new technology [6] .[7] [8]The theory used in this study is TAM, this model aims to predict and explain how technology users can accept and use a technology in their work.

3 Research Methods

3.1 Research Methods

This research is a type of descriptive quantitative research, which is based on positivism philosophy and used to study specific populations or samples, research instruments are used for data collection and statistical data analysis is used to test hypotheses [9].

3.2 Operational Variables and Measurements

The method in collecting data is the distribution of questionnaires with the help of a Likert scale research instrument. This Likert scale is used to measure response answers into a 4-point scale with equal intervals.

In this study, each variable is given an item code, namely PEOU, PU, ATU, and ACC. The variables and indicators used can be seen in Table 1 as follows:

Table 1 Operational Variables and Measurements

No	Variable	Operational Definition	Indicator	Initials	Scale
1	<i>Perceived Eouse of Use</i> (PEOU)	The notion of perceived ease of use pertains to "how much an individual believes that	1. Ease of learning 2. Clear and easy to use	PEOU.1 PEOU.2	Ordinal

		using a specific system will not require much effort"(Jogiyanto (2015:1909)).	3. Ease of goal achievement	PEOU.3	
			4. Flexible	PEOU.4	
			5. Ease of interaction	PEOU.5	
			1. Speed up work	PU.1	
2	<i>Perceived Usefulness (PU)</i>	Perceived usefulness refers to how much an individual thinks that utilizing a specific system will enhance their work efficiency(Jogiyanto, 2019).	2. Answer information needs	PU.2	Ordinal
			3. Improve work performance	PU.3	
			4. Improving efficiency	PU.4	
			1. An attitude of rejection towards the system	ATU.1	
3	<i>Attitude Toward Using (ATU)</i>	Users can indicate positive or negative feelings in predefined behaviors defined by Davis in (Jogiyanto (2007:116))	2. Attitude towards system acceptance	ATU.2	Ordinal
			3. An attitude of rejection towards the system	ATU.3	
			4. Attitude towards system acceptance	ATU.4	

		1. Motivation to keep using	ACC.1	
		<hr/>		
4	<i>Acceptance (ACC)</i>	How users adopt and use technology is based on their perceptions of the benefits and ease of use or not. The more frequently users use the system, the easier it is for them to benefit from the information system (Fred Davis, 1989)	2. Frequency of use	ACC.2
			3. Kepuasan Penggunaan	ACC.3
			4. Usage Satisfaction	ACC.4
				Ordinal

Sources: Results of Data Processing, 2024

3.3 Population and Sample

[9] Population is a conceptual area made up of items or individuals with specific features and traits identified by researchers for study and examination.

[9] In this study, the selected population is MyHR system users. To ensure precise and reliable results, the determination of the sample size uses the Slovin formula because the sample size must represent the population so that the research results can be generalized. The reason the Slovin formula is utilized is because it doesn't need a sample size table, instead it can be carried out with simple formulas and calculations. PT Infineon Technologies Batam has a workforce of approximately 2,400 employees. Slovin's formula to calculate the sample size is outlined below:

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{2.408}{1 + (2.408 \times (0,10))^2}$$

$$= \frac{2.408}{1 + 2.408 \times 0,01} = \frac{2.408}{25,8} = 93,33 \text{ (100) Rounded result}$$

4 Results and Discussion

4.1 Respondent's Characteristics

Based on the survey results obtained from MyHR system users on PT Infineon Technologies Batam employees, data on respondent characteristics based on gender, age, position in the company, length of use of the MyHR system, work period, and frequency of use of the MyHR system were obtained. This survey involved 23 male respondents (23%) and 77 female respondents (77%), with a total of 100 respondents. From the survey results, it can be concluded that the majority of female employees are more intense in applying for work certificates compared to male employees. In addition, the majority of MyHR users are 31-40 years old, with operator positions dominating the use of the system for submitting work certificates. The majority of users also have experience using the MyHR system for less than 1 year, and employees with a work period of 1-5 years are the main users of the system. Frequency of use is also dominated by users with infrequent use patterns, especially by operators who focus on operational activities.

4.2 Descriptive Statistics

Variable	Mean	Category
<i>Perceived Ease of Use</i>	2,54	Good
<i>Perceived Usefulness</i>	3,30	Very Good
<i>Attitude Toward Using</i>	3,06	Good
<i>Acceptance system MyHR</i>	3,44	Very Good

In general, employees have a positive view of the MyHR system based on the dimensions measured. The PEOU dimension shows a mean of 2.54, which is in the "good" category, indicating that employees have a positive view of the ease of use of the MyHR system. Furthermore, the PU dimension has a mean of 3.30 which is in the "very good" category, indicating that employee perceptions of the usability of the MyHR system are very positive. Similarly, the ATU dimension has a mean of 3.06 which falls into the "good" category, and the ACC dimension has a mean of 3.44 which falls into the "very good" category, indicating that employee perceptions of the benefits of the MyHR system and perceptions of control over the MyHR system are also very positive.

These results indicate that overall, employees have a positive view of the ease of use, usability, benefits, and control of the MyHR system. Thus, it can be considered that the MyHR system is generally well received by employees based on the dimensions measured.

4.3 Result and Discussion

If the PLS model demonstrates that all indicators satisfy the requirements for convergent validity, discriminant validity, and composite reliability, the outcomes of the measurement model can be utilized to evaluate the study's hypotheses.

a. Convergent validity

The loading factor value of each indicator indicates an examination of the construct. The loading factors for each indicator are shown in figure 2 below

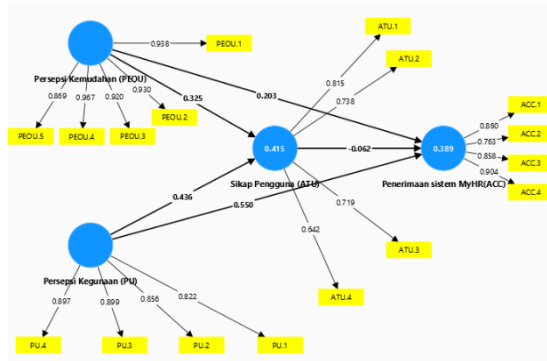


Figure 1 Outer Model

Convergent validity and high validity occur when the Outer loadings value exceeds 0,70 and the Average Variance Extracted (AVE) value exceeds 0,50. When the Outer loadings value is $> 0,70$, all indicators of the study variables show convergent and high validity. For example, if each study variable has an $AVE > 0,50$, then all study variables have strong convergent validity. The measurement model analysis showed several manifest variables with factor loadings $< 0,7$, so they should be removed from the model to fulfill the rule of thumb. In this context, the model should remove the variable Attitude Toward Using 4 (ATU.4).

The following Loading Factor values have been removed.

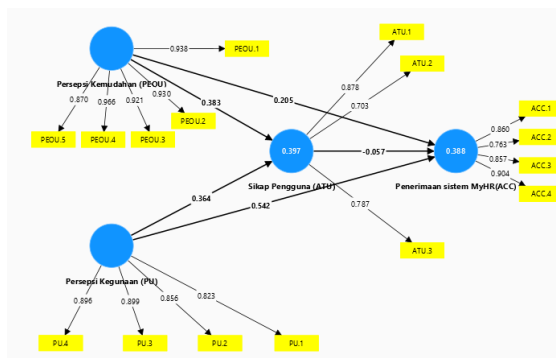


Figure 2 Estimated Model

b. Discriminant Validity

This value is the cross-loadings factor (Cross Loading).

Table 2 Discriminant Validity

	Perceived Ease of Use	Perceived Usefulness	Attitude Toward Using	Acceptance
PEOU.1	0,938	0,428	0,512	0,351
PEOU.2	0,930	0,330	0,492	0,264
PEOU.3	0,921	0,370	0,501	0,341
PEOU.4	0,966	0,415	0,518	0,399
PEOU.5	0,870	0,403	0,461	0,490
PU.1	0,444	0,823	0,506	0,407
PU.2	0,339	0,856	0,426	0,583
PU.3	0,412	0,899	0,427	0,530
PU.4	0,288	0,896	0,473	0,551
ATU.1	0,516	0,338	0,878	0,258
ATU.2	0,266	0,582	0,703	0,345
ATU.3	0,505	0,302	0,787	0,184
ACC.1	0,383	0,585	0,263	0,860
ACC.2	0,283	0,311	0,246	0,763
ACC.3	0,310	0,555	0,327	0,857
ACC.4	0,378	0,512	0,307	0,904

Source: SmarPLS results

Based on the data above, indicators for each construct tend to have higher factor loadings on the constructs they are supposed to measure than other constructs, for example, the PEOU indicator has the highest factor loading on the perceived ease of use construct, with significant loadings (all above 0,8) and much lower loadings on other constructs. The same is true for the PU, ATU, and ACC indicators. Thus, the cross-loading check shows that the constructs in this model exhibit good discriminant validity, as the indicators for each construct tend to be more related to the construct they are supposed to measure than other constructs.

c. Composite Reliability

The construction indicator block used composite reliability and Cronbach's alpha coefficients to evaluate construct reliability. The composite reliability and Cronbach's alpha values exceeding 0,70 signify the successful establishment of construct reliability.

	Cronbach's <i>alpha</i>	Composite ralibility (rho_a)	Composite realibility (rho_c)	Average variance extracted (AVE)
Perceived Ease of Use	0,958	0,960	0,968	0,856
Perceived	0,891	0,895	0,925	0,755

Usefulness				
Attitude Toward Using	0,708	0,718	0,820	0,534
Acceptance	0,871	0,895	0,910	0,718

Table 3 Construct Validity and Reliability

Source: SmarPLS results

Each construct has a high composite reliability ($\rho_c > 0.7$), indicating a good correlation between its indicators. The average value of variance extracted (AVE) is relatively high, indicating that the indicators explain the construct variation particularly well.

d. R-Square

By considering the R-square value of the dependent variable and the path coefficients of the independent variables, we can evaluate the structural model. Next, we check the significance of these numbers by looking at the t-statistics for each possible path.

1. A model is regarded as strong when the R-Square value equals 0,70.
2. The model is deemed moderate when the R-Square value is 0,50.
3. If the R-Square value is 0,25 or lower, the model is seen as weak.

Table 4 R-Square

	<i>R-Square</i>	<i>Adjusted R-Square</i>
Acceptance (ACC)	0,389	0,370
Attitude Toward Using (ATU)	0,415	0,403

Source: SmarPLS results

An R-Square value of 0,389 for the Acceptance variable suggests that approximately 38,9% of the fluctuations in ACC can be clarified by PEOU and PU. In the meantime, the R-Square value for the Attitude Toward Using variable (ATU) of 0,415 suggests that approximately 41,5% of the variance in the Attitude Toward Using variable is accounted for by the two independent variables. Therefore, the findings of the study show that the impact of Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) is important in elucidating the differences in Acceptance (ACC) and Attitude Toward Using (ATU)..

e. F-Square

The impact of external latent factors on endogenous latent variables can be determined using the effect size F-2.

1. Effect Size 0.35 is considered to have a strong influence.
2. Effect Size 0.15 is considered to have a weak influence.
3. An estimated effect size of 0.02 is considered to have a weak influence.

Perceived Ease of Use	Perceived Usefulness	Attitude Toward Using	Acceptance
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Perceived Ease of Use	0,149	0,048
Perceived Usefulness	0,200	0,321
Attitude Toward Using		0,004
Acceptance		

Table 5 F-Square

Source: SmarPLS results

The F-Square value indicates that Perceived Ease of use (PEOU) and Perceived Usefulness (PU) have a greater impact on Acceptance (ACC) than on Attitude Toward Using (ATU). A higher F-Square value indicates a stronger contribution to the Acceptance (ACC) variable in the regression model. Attitude Toward Using (ATU) has a lower influence on Acceptance (ACC) than the other variables.

f. Hypothesis Test (T-Statistic)

The bootstrap procedure accepts hypotheses when the significant t-values exceed 1.96, at a significance level below 0.05, when testing hypotheses using statistical tests such as t-statistics, p-values, and inter-construct significance values. By replacing empirical observations with statistical assumptions, estimates and standard errors of measurement are no longer calculated.

Table 6 Path coefficient - Mean, STDEV, T-value, P-value

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T Statistics (O/STDEV)	P value	Result
PEOU -> ACC	0,203	0,209	0,094	2,163	0,031	Accepted
PEOU -> ATU	0,325	0,313	0,123	2,651	0,008	Accepted
PU -> ACC	0,550	0,559	0,083	6,623	0,000	Accepted
PU -> ATU	0,436	0,463	0,089	4,908	0,000	Accepted
ATU -> ACC	-0,062	-0,070	0,086	0,724	0,459	Rejected

Source: SmarPLS results

The hypothesis analysis obtained is as follows:

1. **H1:** Perceived Ease Of Use (PEOU) has a significant impact on the Acceptance (ACC) of the MyHR system. This is supported by the statistical analysis, where the t-value is 2,163, which is greater than the critical value of 1,96, or the p-value is 0,031, which is less than the significance level of 0,050. The results of this hypothesis test are the same as the results of research conducted by Albert Budiyono (2023) which states that perceived ease of use (PEOU) has a significant effect on acceptance (ACC) of the use of the Binus Nusantara Institute Academic Information System Application.

2. **H2:** PEOU influences the Attitude Toward Using (ATU). Again, the statistical analysis supports this, as PEOU has a t-value of 2,651, greater than 1,96, and a p-value of 0,008, less than 0,050. The results of this hypothesis test are in line with research conducted by Nurlaila, et al (2022) which shows that Perceived Ease of Use has an effect on Attitude Toward Using, this shows that perceived convenience affects user acceptance of PPID's website.
3. **H3:** Perceived Usefulness (PU) has an influence on MyHR system ACC. This hypothesis is accepted because PU has a t-value statistic of 6,623 > 1.96 or the P-values are 0,000 < 0,050. This hypothesis test is the same as research conducted by Agus Mulyanto, et al (2020) Perceived ease of use, Perceived usefulness has a significant effect on Acceptance of IT.
4. **H4:** PU has an influence on ATU. This hypothesis is accepted because PU has a t-value statistic of 4.908 > 1.96 or the P-values are 0.000 < 0.050. The results of descriptive statistical analysis on TAM show that MasjidLink is accepted by the community. This result is in accordance with Permana's research (2018), this study shows that Perceived Usefulness has an effect on Attitude Toward Using.
5. **H5:** There is no correlation between ATU and MyHR system ACC. This hypothesis is rejected because the t-value statistic is 0.724 < 1.96 or the P-value is 0.459 > 0.050.

5 Conclusions and Suggestions

From this research on the use of MyHR system at PT Infineon Technologies Batam, it can be concluded that employees' impressions of how easy and how useful the system is have an effect on its acceptance and use.

1. State that Perceived Ease of Use has a positive effect on MyHR system acceptance. Employees' impression that using the MyHR system is easy, without requiring excessive effort, makes them more open and ready to use it. This helps improve efficiency in submitting work certificates, speed up responses, and make the overall employee experience better.
2. Perceived Ease of Use using the MyHR system has a favorable impact on the Attitude Toward Using its utilization. These findings suggest that employees are more receptive and prepared to integrate this system into their work practices, potentially enhancing efficiency in the submission of work certificates, expediting responses, and enhancing the overall employee experience.
3. The Perceived Usefulness of MyHR also affects the acceptance of this system. If employees feel the system provides tangible benefits in the work certificate submission process, they are more likely to accept and adopt the system. This helps improve the efficiency of the submission process, provides tangible benefits to users, and increases employee satisfaction and productivity.
4. Perceived Usefulness has a positive effect on Attitude Toward Using, when employees feel that the MyHR system provides real benefits in the process of submitting work certificates, this tends to increase users' positive attitudes towards the system.

5. Attitude Toward Using system use does not significantly affect system acceptance, it does not significantly affect system acceptance. This indicates that additional variables, such as the Perceived Ease of Use (PEOU) or the Perceived Usefulness (PU), might exert a more substantial influence on the system's adoption.

In conclusion, this research will provide useful suggestions as follows:

1. More awareness is necessary about how helpful and user-friendly the MyHR system is for employees. By providing more effective training or socialization, it is hoped that positive perceptions of the system can increase, which in turn will improve the efficiency of the work certificate submission process and the overall employee experience.
2. It is important to involve employees in the development and improvement stages of the MyHR system. By obtaining direct input from users, improvements made will be more in line with their daily needs, which can enhance overall system acceptance and adoption.
3. Monitoring of questionnaire filling needs to be improved so that the results obtained are appropriate and maximized.
4. Future research should use more independent variables for more varied results.
5. Further research should incorporate interviews with participants to gather more accurate data and depict real-life situations.

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