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Factor analysis of enterprise resource planning applications at PT. Hanampi Sejahtera Kahuripan

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Abstract
Purpose: This study aims to solve the problems of ERP technology acceptance in PT. Hanampi Sejahtera Kahuripan (PT.HSK) and help employees adapt to using new technology.
Method: The contribution of this research is to consider the problem using a factor analysis method based on the TAM and TIB models. In this research, the author took a quantitative approach through a survey involving 137 PT. HSK employees.
Results: After being analyzed using Confirmatory Factor Analysis (CFA), six factors were produced that influence the implementation of ERP information systems at PT. HSK. These factors are the Convenience Factor (factor 1), effectiveness factor (factor 2), behavior factor (factor 3), understanding factor (factor 4), performance factor (factor 5), and importance factor (factor 6). The research results show that six new factors were discovered, and the convenience factor emerged as the most influential in the acceptance of ERP technology at PT. HSK.
Contribution: PT. HSK must pay attention to the convenience factor in the implementation and development of the ERP system so that employees can feel that using the ERP system can make their work faster and easier.
Limitations: There are several limitations in this research, including the number of respondents and the research object that only focuses on PT. HSK, and the information provided by respondents through the questionnaires sometimes does not show their "true opinions."
Keywords: *Digital Transformation, ERP, TAM, TIB, Confirmatory Factor Analysis*
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1. Introduction

Rapid and massive technological advances encourage humans to use technology to help with various types of daily activities. Technology exists as a solution to various problems. It brings change to the way we work and live by offering processes that are smoother, time-saving, and connected. Currently, we live an all-digital era. In this era, information technology is advancing at an incredible rate, leaving other fields behind. The discovery of the Internet became the initial development point of information technology. The Internet, which we now know as one of the major breakthroughs in the world of communications, began to appear among us in 1983. However, the Internet as we know it today really took shape when Tim Berners-Lee created the World Wide Web or WWW. The Internet has created an interconnected world, allowing users to connect with each other and access the information they need. Since its emergence, Internet use has continued to increase rapidly. In Indonesia, this development is significant. Based on the latest survey from APJII regarding Indonesian Internet penetration in 2023,

Internet users in this country have reached 210 million people. This figure shows that almost 80% of Indonesia's population now uses the Internet in their daily lives.

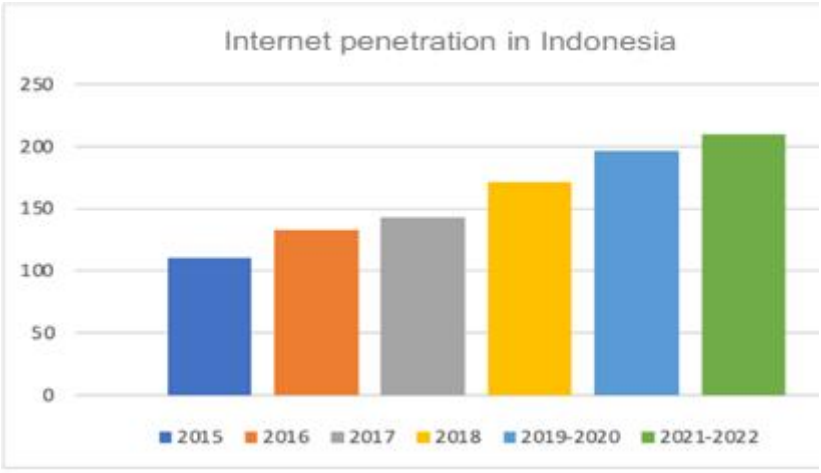

Figure 1. Internet penetration in Indonesia based on the Indonesian Internet Service Providers Association (APJII) in 2022 in the 2023 Indonesian internet penetration survey

The high inclusion of Internet access in Indonesia is a potential and a challenge in itself. Despite the fact that Internet services can be used for various purposes in many fields, such as economics, the appropriateness of their use needs to be studied more deeply. In essence, all companies have similar goals, namely to advance the company and survive in business competition, so the mastered information technology needs to be aligned with the stated goals.

From the statement above, there are several factors that can be analyzed in their influence on the application of a technology. Among these, there are two factors to consider when applying technology to a business. First, what kind of technology is appropriate for a company? The needs of each business unit are, of course, different; a decision maker's astuteness in applying existing information technology is the key to a company's success. The second is the ability of human resources to apply the information technology that has been determined in the business. Human resources are a key factor in every organization, regardless of its form or purpose. Organizations are formed based on various visions for the benefit of humans. Therefore, it is important for every organization to recruit high-quality and productive employees so that they can perform their functions well.

Nowadays, more businesses are realizing the importance of accurate, easily accessible information to achieve a competitive advantage (Saputra, 2022). In dealing with employees, management is required to understand a good strategy better than something related to company performance (Dessler & Varrkey, 2005). Management can overcome these obstacles by providing new ideas that work more efficiently and effectively. Therefore, there was a significant difference between the two. In other words, companies must provide compensation to employees through good technological innovation.

From the above description, technological innovation always has an impact on human life. This growth is driven by factors such as the sharing economy(e.g., peer-to-peer platforms and online marketplaces), favorable regulations (e.g., consumer protection measures), and advancements in information technology (e.g., cloud computing and artificial intelligence) (Otonne & Ige, 2023). Technological advances have contributed to human well-being, including new jobs, goods, travel, and communication. However, technology also has the potential to be disruptive, especially if the choice of technology is inappropriate. Additionally, technology can affect how the workforce is hired and how companies operate. In the context of information technology, the main focus studied is how the characteristics of applied information technology can benefit the company. Information technology is the application of Enterprise Resource Planning (ERP) information systems in companies. Since the company was founded, the information and recording system has still used manual patterns. By 2021, companies are

attempting to use ERP information systems as a form of adaptation in the current era of digitalization. When this ERP information system is used, several divisions are integrated and can be monitored in real time, such as the marketing, purchasing, finance, logistics, and quality control divisions.

Before implementing an ERP information system, companies must prepare employees by increasing their competency. According to Basri and Umar (2021), competency is the primary requirement for achieving performance. Competence enables a person to complete the work necessary to achieve company or group goals. Soetrisno (2016) explains competency as an ability based on ability and knowledge, which is supported by a positive work attitude and applied in carrying out tasks and work related to the specified work requirements.

Parviainen, Tihinen, Kääriäinen, and Teppola (2017) stated that digital transformation can be translated as changes in the way work, roles, and business offerings are caused by the adoption of digital technology in the operational environment of organizations and the company itself. Therefore, the implementation of the ERP information system needs to be carried out holistically, both in terms of human resources and the study of appropriate technology to be applied to the company to simplify the digital adoption process at PT. Hanampi Sejahtera Kahuripan (PT. HSK).

Based on an interview with the HR manager of the PT. HSK in October 2023, in the last six months, there have been problems found, such as difficulties in adapting to using the ERP information system, especially when inputting data and the User Interface (UI) of the ERP information system, which, according to them, is not user-friendly. This program makes it difficult for employees to input data and change the work patterns that employees usually carry out. Most employees complain about ERP information system applications, which are not user-friendly and cause problems in their work. Employees complain a lot, especially about data that has been entered or entered but has not appeared on the display in the application; therefore, employees input data several times. The next difficulty is that bugs often occur in the application, so maintenance or repairs must be carried out by the developer responsible for the ERP information system application. According to Amegayibor (2021), staff training and development are essential for them to keep up with current events and practices.

The technical obstacles above show that employees are less comfortable and have difficulty adapting to the new system, even though training and assistance in the transition process have been carried out over the last six months. To answer this, management must determine the factors that influence the application of digitalization at PT. HSK to improve future business performance. The factors analyzed in this research were obtained through a review of references in journals and books. Two theories are used as the basis for selecting variables; these theories are the Technology Acceptance Theory (TAM) and the Interpersonal Behavior Theory (TIB).

In conclusion, this research attempts to solve the problem of implementing an ERP information system at PT. HSK takes the form of a review of employee acceptance and interpersonal behavior. Therefore, the author attempts to analyze the factors that influence the application of ERP information systems for PT. HSK.

Based on the identification and limitations of the problems described above, the focus of this research is to identify all variables that influence the implementation of ERP information systems at PT. HSK?

2. Literature review

2.1. Digital Transformation

In the current Industrial Revolution 5.0, all sectors must experience digital transformation. While the focus of Industrial Revolution 4.0 is on the application of technology in everyday life, the focus of Industrial Revolution 5.0 is on optimizing current human resources to collaborate with technology and machines in the production process. In this situation, humans and technology work together; more precisely, humans become part of technology. In Business Digitization, entrepreneurship procedures such as customer relationship management, enterprise resource planning (ERP), supply, selling chain

management, e-procurement, and enterprise application integration tend to occur (Seneviratne & Colombage, 2023). According to Kraus et al. (2021), digital transformation has evolved from technological potential to a necessity for managing the needs and desires of an ever-increasing global population. Digitalization enables new business models, more efficient operations, and better customer experience (Warner & Wäger, 2019).

Currently, medium- and large-scale companies are conducting digital transformation to maintain their existence and continue to grow in the future. According to Heavin and Power (2018), digital transformation has changed life, namely, the way we work, organize, and so on. Companies must carry out digital transformation to address changing business needs. On the other hand, businesses need human resources (HR) who are experienced and talented in using new technology.

2.2. Job Competence

Job Competence can predict the behavior and performance of an employee. According to Rahmat and Basalamah (2019), competency is related to a person's performance and excellence in a particular job. Generally, employee performance is a critical determinant of organizational success, particularly in the competitive landscape of the manufacturing industry (Abdullah, 2024).

According to Gultom, Wati, and Sinaga (2019), competency is a person's ability to achieve a satisfactory level of productivity in the workplace, including the ability to transfer and apply these abilities and knowledge to a new work environment with the aim of increasing profits. Human resources are the assets used in an association, and human resource management mentions the way to show that human capital is used (Akter, 2021).

Competency, on the other hand, is a result that leads to the overall achievement of goals towards the desired condition (Fauzi & Siregar, 2019). One important element for preparing employees is competency, especially in terms of the digital transformation of the company.

2.3. Enterprise Resource Planning (ERP)

According to Marakas and O'Brien (2013), five main components constitute an ERP system: production planning, sales and distribution, logistics integration, accounting and finance, and human resources. Several studies have been conducted to determine the effectiveness and success of ERP in various business fields. However, from the many analyses regarding the use of ERP, not all of the main components have been analyzed, such as Morawi (2022), who analyzed the use of ERP in supporting the company's invoice payment collection process. Meanwhile, Maulana, Heryana, and Voutama (2022) attempted to find the relationship between ERP implementation in the goods procurement process. The author feels that there is a literacy gap in the use of ERP systems in companies, which will be discussed in the thesis with the title analysis of factors that influence the readiness of human resources in implementing ERP information systems in PT. HSK.

2.4. Technology Acceptance Model (TAM)

The technology acceptance model itself is a development of the theory of reasoned action (TRA), which shows that a person's behavior will be determined by their intention to do something, where the basis is attitudes towards behavior and subjective norms (Ajzen & Fishbein, 1975).

This technology acceptance model is widely used by academics and researchers to analyze factors in the use of information technology. Throughout 2022, hundreds of studies were conducted using the technology acceptance model as a basic theory in various research fields. In the field of education, the massive development of technology has made researchers look for factors in the use of information technology for learning effectiveness. Zhang (2022) conducted an analysis of factors influencing the behavior of applying art in comprehensive materials among art undergraduates in universities in Chengdu. The use of this technology acceptance model is increasing in the world of education owing to the COVID-19 pandemic. Rektenwald (2022) observed the acceptance of online learning management systems in higher education as a result of the global pandemic.

2.5. Theory of Interpersonal Behavior (TIB)

Triandis (1977) in his book Cross-cultural social and personality psychology, revealed that a person is not completely deliberative or completely automatic, not completely autonomous or completely social. Behavior is influenced by moral beliefs, but the impact is moderated by emotional drives and cognitive limitations; therefore, a theory of interpersonal behavior is formed.

Kinarwanto (2013) conducted research on the components of IT utilization and how they impact personal performance (a study of Malang city PDAM). In this study, social factors, feelings, task suitability, long-term consequences, and conditions that facilitate the use of information technology are used as indicators. In addition, it is also stated that the likelihood of executing a behavior is not only subject to the person's habits but also to situations that facilitate the behavior and intentions (Sung, Cooper, & Kettley, 2019). The results show that feelings, task suitability, and long-term consequences have a positive and significant influence, while social factors and facilitating conditions have a positive influence but are not valid or significant. Complexity has a negative and significant impact on IT use.

2.6. Framework

Implementing an ERP information system in a company is a big challenge; therefore, a deeper analysis is needed to achieve success in its implementation. The high cost and complexity of the system are crucial for the successful implementation of an ERP information system. ERP information systems can cover the processes of production planning, sales and distribution, integration of logistics, accounting and finance, and human resources in a company. If the application is performed correctly, it will be highly profitable for the company. We used the theoretical basis of the technology acceptance model (TAM), which includes perceived usefulness and perceived convenience, as well as the theory of interpersonal behavior (TIB), which includes information technology utilization, attitudes, and social factors.

The initial aim of this research was to identify variables that influence the level of implementation of ERP information systems at PT. HSK. The final aim of this research is to solve the existing problems in PT. HSK by identifying the factors of ERP IS implementation through the technology acceptance model approach and interpersonal behavior theory.

The rationale for implementing an ERP information system using TAM theory and TIB is shown in Figure 2.

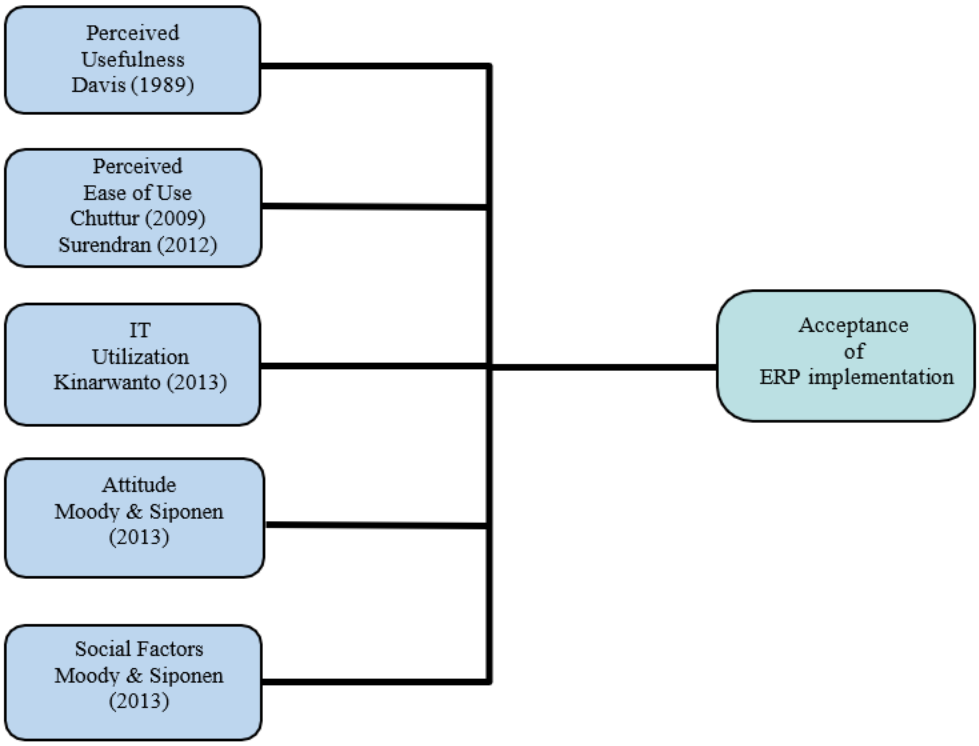

Figure 2. Framework

2.7. Hypotheses Development

Based on TAM theory, it can be predicted that there are two factors that have a significant impact on the acceptance of ERP implementation: Perceived Usefulness according to Davis (1989) and PEU according to Chuttur (2009) and Surendran (2012).

Based on TIB theory, it can be predicted that there are three factors that have a significant impact on the acceptance of ERP implementation: consisting of Information Technology utilization (Kinarwanto, 2013), attitude (Moody & Siponen, 2013), and Social Factors (Moody & Siponen, 2013).

3. Research Methodology

The author used quantitative methods with a descriptive research type. Factor analysis was the data analysis method used. Factor analysis consists of two main categories: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) (Williams, Onsman, & Brown, 2010). Factor analysis was used to determine which variables had the greatest impact on the operationalization of previously determined variables. Factor analysis was used to reduce data or summarize variables. Variables that still contain most of the information from the original variables are called factor analysis (Supranto, 2010). In this research, the TAM and TIB theories are used as a basis. Next, a correlation matrix of these variables was created, and the techniques used to analyze the factors were selected. The researcher determined the number of components to be extracted from the current variables. The Kaiser-Meyer-Olkin Test (KMO), Measure of Sampling Adequacy (MSA), and Test of Bartlett's Sphericity are tools that can be used to determine whether factor analysis is appropriate. Next, anti-image metric analysis, variable extraction, determining the number of factors (factoring), factor rotation, factor embedding, and factor interpretation were performed. This study involved 137 PT HSK employees who used the ERP information system application, including the production, finance, and marketing divisions.

4. Results and discussions

4.1. Descriptive Analysis

Descriptive analysis is a type of analysis used to explain data that have been collected without intending to make conclusions that apply to generalizations. The statement consists of 27 items, which come from

the variables perceived usefulness, perceived ease of use, use of information technology, attitudes, and social factors, to obtain a better understanding of the statement. The level of implementation of the Enterprise Resource Planning (ERP) information system is 71.198%, according to the data processing results. This value indicates a fairly high level of implementation because it is in the good category range. Based on the results of the descriptive analysis that has been carried out, the following respondents' responses to each variable are shown in Table 1.

Table 1. Respondents' responses to each variable

Variable	Score	%Score	Category
Perceived Usefulness	6850	69.91	Good
Perceived Ease of Use	6165	64.96	Enough
Utilization of Information Technology	2740	67.77	Enough
Attitude	1370	77.15	Good
Social Factors	1370	76.2	Good
Average	3,699	71.2	Good

Source: Author's Processed Results, 2024

Based on Table 1, the highest respondent response was to the Attitude variable with a score of 77.15%, followed by Social Factors 76.2%, Perception of Usefulness 69.91%, Use of Information Technology 67.77%, and Perception of Convenience with a score of 64.96%.

4.2. Factor Analysis

Factor analysis analyzes the relationships between various variables. The aim is to reduce the number of variables studied to a factor smaller than the initial number of variables (Santoso, 2006). Confirmatory Factor Analysis (CFA) is the method used in this research because it identifies the structure of the relationship between variables by revealing the factors or dimensions that underlie the relationship.

4.2.1. Kaiser-Mayer-Olkin Test (KMO) and Bartlett's Test of Sphericity

To determine whether factor analysis was appropriate, the Kaiser-Meyer-Olkin (KMO) test and Measure of Sampling Adequacy (MSA) were used. The Measure of Sampling Adequacy assesses KMO with a value between 0 and 1 and questions the appropriateness of the factor analysis. If the KMO index value is high (ranging between 0.5 and 1.0), factor analysis is feasible, but if the KMO index value is less than 0.5, factor analysis is not feasible. However, Bartlett's test of sphericity was used to determine whether there was a correlation between a number of variables. If Bartlett's test of sphericity is successful, it indicates that the correlation matrix has a significant correlation with several variables. The following is a table of KMO and Bartlett's test results with the help of SPSS 25 software.

Table 2. Kaiser Meyer Olkin (KMO) and Bartlett's Test Results

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,831
Bartlett's Test of Sphericity	Approx. Chi-Square	3741,969
	df	300
	Sig.	,000

Source: Author's Processed Results, 2024

According to the output table above, the KMO-MSA value is 0.831 (greater than 0.5), indicating that the research variables can be predicted and analyzed further. The significance value of Bartlett's Test of Sphericity is 0.000 (smaller than 0.05), indicating that the research variables can be predicted and analyzed further.

4.2.2. Anti-Image Matrices

The KMO-MSA value indicates whether the factor analysis is feasible or not, and the anti-image matrix results support this. The main diagonal displays these values with numbers given in the letter (a). The value must be greater than 0.5, because this number shows how well an indicator can explain other indicators; a higher number indicates that the indicator can explain more. The anti-image matrix values of each indicator are listed in Table 3. It is clear that all indicators have anti-image correlation values above 0.5; therefore, the analysis can be continued. In this research, there are two indicators that do not meet the requirements for testing Anti-image matrices, namely Perception of Convenience 4 (PK4) and Use of Technology 4 (PT4) because the numbers are below 0.5, so these two variables are removed to form the Anti-image Matrices value as in Table 3 below.

Table 3. Anti Image Matrices Value

Items	***Anti-image Matrices***
PK1	0.833
PK2	0.775
PK3	0.854
PK4	0.413
PK5	0.930
PK6	0.914
PK7	0.722
PK8	0.804
PK9	0.845
PK10	0.951
PKP1	0.633
PKP2	0.679
PKP3	0.594
PKP4	0.813
PKP5	0.782
PKP6	0.705
PKP7	0.938
PKP8	0.849
PKP9	0.894
PT1	0.838
PT2	0.888
PT3	0.887
PT4	0.131
S1	0.831
S2	0.805
FS1	0.833

FS2	0.734

Source: Author's Processed Results, 2024

4.2.3. Variable Extraction

Extracting a selected set of variables to form one or more factors is the next step in factor analysis. This can be seen in the level of communality of the variables explained for each item. A greater variable communality indicates a stronger relationship between the variable and the formed factors, whereas a lower variable communality indicates a weaker relationship between the variable and the formed factors. The communality value of the duplex variable is shown in Table 4.

Table 4. Communality Values

	Initial	Extraction
PK1	1,000	,793
PK2	1,000	,705
PK3	1,000	,738
PK5	1,000	,642
PK6	1,000	,571
PK7	1,000	,903
PK8	1,000	,919
PK9	1,000	,898
PK10	1,000	,627
PKP1	1,000	,639
PKP2	1,000	,892
PKP3	1,000	,884
PKP4	1,000	,738
PKP5	1,000	,831
PKP6	1,000	,785
PKP7	1,000	,795
PKP8	1,000	,888
PKP9	1,000	,865
PT1	1,000	,885
PT2	1,000	,871
PT3	1,000	,764
S1	1,000	,844
S2	1,000	,737
FS1	1,000	,692
FS2	1,000	,776
Extraction Method: Principal Component Analysis.		

Source: Author's Processed Results, 2024

The table above shows the initial and extraction values. The initial value shows the variable variance before extraction, and the extraction value shows the percentage of the variable variance that can be explained by the factors that will be formed. A larger extraction value indicates a stronger relationship with the factor to be formed. This is shown in the table above, where every variable with a value above 0.5 and every variable with a value close to 1 has a strong relationship with the factor to be formed.

4.2.4. Determining the Number of Factors (Factoring)

Only factors with an eigenvalue greater than 1 were retained in the factor analysis model, whereas others were excluded. The eigenvalue determines the number of factors required to represent each variable to be analyzed. Table 5 shows the results of the Total Variance Explained.

Table 5. Total Variance Table

Components	*Initial Eigenvalues*

	Total	*% of Variance*	*Cumulative %*
1	11,173	44,692	44,692
2	2,119	8,475	53,166
3	2,054	8,215	61,381
4	1,690	6,761	68,142
5	1,460	5,839	73,981
6	1,186	4,744	78,725
7	0.906	3,625	82,350
8	0.708	2,833	85,183
9	0.609	2,435	87,618
10	0.491	1,962	89,581
11	0.405	1,618	91,199
12	0.382	1,526	92,725
13	0.345	1,379	94.104
14	0.304	1,217	95.321
15	0.249	0.995	96.316
16	0.221	0.883	97,199
17	0.160	0.642	97,841
18	0.134	0.537	98,378
19	0.127	0.507	98,885
20	0.081	0.325	99.210
21	0.066	0.263	99,473
22	0.059	0.235	99,708
23	0.041	0.164	99,872
24	0.026	0.106	99,978
25	0.005	0.022	100,000
Extraction Method: Principal Component Analysis.			

Source: Author's Processed Results, 2024

The six factors are listed in Table 5. The first factor had an eigenvalue of 11.173, the second factor had an eigenvalue of 2.119, the third factor had an eigenvalue of 2.054, the fourth factor had an eigenvalue of 1.690, the fifth factor had an eigenvalue of 1.460, and the sixth had an eigenvalue of 1.186. Two factors can be found from the table, each with a variance percentage of 44.692%, 8.475%, 8.215%, 6.761%, 5.839%, and 4.744%. Thus, six factors can explain a total percentage of 78.725 percent of all existing variables.

In addition, the number of factors can also be seen through the scree plot formed. The scree plot in Figure 3 shows the relationship between many factors in the form of a graph.

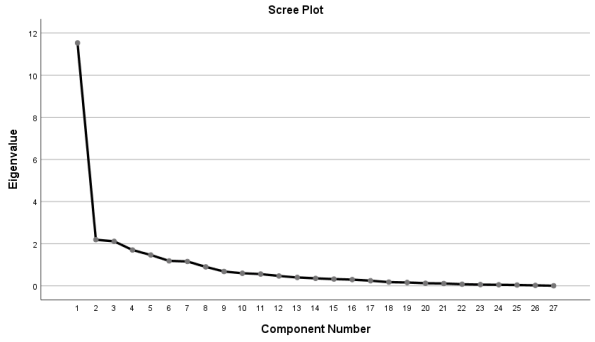

Figure 3. Scree Plot

Figure 3 shows the results of the grouping based on the new eigenvalue. The higher the eigenvalue of a factor, the higher its placement, where there are six factors with eigenvalues that exceed 1.0, while items that are along the descending line are items that have an eigenvalue below 1.0.

4.2.5. Factor Rotation

According to Sutopo and Slamet (2017), factor rotation must be performed to avoid difficulties in interpreting new factors. For the purposes of this research, orthogonal rotation, together with the varimax procedure—variance of maximum—produces a simple factor structure by maximizing the number of differences in factors containing squared loading values. Table 6 shows the results of the factor rotation.

Table 6. Rotation Factor Value

	Components					
	1	2	3	4	5	6
PKP5	,856	,084	,258	-.093	,072	-.107
PKP8	,763	,277	,089	,314	.109	,334
PKP4	,749	,149	,329	,055	,185	-.099
PT1	,726	,413	-.007	,202	,036	,380
PT3	,695	,339	.101	-.012	.143	,369
PKP7	,688	,393	,198	,269	,098	,216
PKP9	,646	,515	,083	,276	.173	,266
PT2	,605	,424	,034	,189	,148	,516
PK8	,208	,900	,160	.131	,130	.071
PK7	,219	,893	,146	.117	.127	,082
PK9	,266	,851	,272	-.075	,140	-.055
PK5	,251	,576	,209	,415	-.011	.173
PK10	,478	,549	,275	,075	,130	-.015
PK6	,368	,540	-.005	.117	,324	,160
PKP6	,237	,048	,849	.017	.023	-.075
S1	,152	,333	,766	,214	,000	,278
S2	,053	,356	,718	,255	,008	,161
FS1	,306	.107	,599	,000	,068	,473
PKP3	-.205	,006	-.202	-.889	-.054	,085
PKP2	-.149	-.292	-.180	-.847	-.099	,158
PKP1	,064	-.061	,080	-.666	-.256	-.340
PK2	,045	,001	-.062	,093	,825	,096
PK1	,163	,230	,187	,089	,819	,008
PK3	,295	,371	-.034	.173	,659	,219
FS2	,195	,025	,264	-.060	,179	,795

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Source: Author's Processed Results, 2024

Table 7 shows the distribution of variables that were extracted into factors that were formed based on the holding factors after the rotation process. Then, the variables in the same factor are grouped as follows:

Factor 1:

PT1	There is satisfaction and a sense of fun in using ERP
PT2	I feel ERP is suitable for use in my work
PT3	Using ERP opens up opportunities for my career in the future

PKP4	I find ERP easy to understand
PKP5	I find ERP easy to remember
PKP7	I find ERP easy to use
PKP8	I find ERP easy to learn
PKP9	In general, I feel ERP makes my job easier

Factor 2:

PK5	Using ERP speeds up my work
PK6	Using ERP makes my work effective
PK7	Using ERP improves the quality of my work
PK8	Using ERP increases my work productivity
PK9	Using ERP makes my work easier
PK10	In general, using ERP is useful in my work

Factor 3:

PKP6	I feel ERP has a good usage guide
S1	I "feel" using ERP is a good idea
S2	I "judge" using ERP is a good idea
FS1	I find it natural to use ERP in my work

Factor 4:

PKP1	I often confused about using ERP
PKP2	I often frustrated when using ERP
PKP3	I feel ERP is too rigid and inflexible

Factor 5:

PK1	My job becomes more difficult without ERP
PK2	Using ERP makes it easier to control work
PK3	Using ERP improves my work performance

Factor 6:

FS2	I feel myself important when using ERP at work

4.2.6. Factor Transformation Matrix

The correlation value between factors 1 to 6 that is formed can be determined by examining the Factor Transformation Matrix. The Factor Transformation Matrix is displayed in Table 7.

Table 7. Factor Transformation Matrix

Components	1	2	3	4	5	6
1	,604	,573	,318	,277	,245	,264
2	,243	-.089	,578	-.579	-.513	,025
3	,405	-.022	-.573	-.623	,264	,221
4	-.313	,776	-.115	-.311	-.083	-.428
5	-.450	-.022	,436	-.318	,656	,276
6	,336	-.246	,179	-.042	,414	-.789
Extraction Method: Principal Component Analysis. *Rotation Method: Varimax with Kaiser Normalization*.						

Source: Author's Processed Results, 2024

4.2.7. Factor Naming

To make the process of naming the factors that have been formed easier, the question items for each factor were ordered according to factor loading.

Table 8. Grouping Statement Items according to Factor Loading Order

Factor	**Items**	**Statement**	***Factor Loading***
1	PKP5	I find ERP easy to remember	0.856
	PKP8	I find ERP easy to learn	0.763
	PKP4	I find ERP easy to understand	0.749
	PT1	There is satisfaction and a sense of fun in using ERP	0.726
	PT3	Using ERP opens up opportunities for my career in the future	0.695
	PKP7	I find ERP easy to use	0.688
	PKP9	In general, I feel ERP makes my job easier	0.646
	PT2	I feel ERP is suitable for use in my work	0.605
2	PK8	Using ERP increases my work productivity	0.9
	PK7	Using ERP improves the quality of my work	0.893
	PK9	Using ERP makes my work easier	0.851
	PK5	Using ERP speeds up my work	0.576
	PK10	In general, using ERP is useful in my work	0.549
	PK6	Using ERP makes my work effective	0.54
3	PKP6	I feel ERP has a good usage guide	0.849
	S1	I "feel" using ERP is a good idea	0.766
	S2	I "judge" using ERP is a good idea	0.718
	FS1	I find it natural to use ERP in my work	0.599

Factor	Items	Statement	*Factor Loading*
4	PKP3	I feel ERP is too rigid and inflexible	-0.889
	PKP2	I often frustrated when using ERP	-0.847
	PKP1	I often confused about using ERP	-0.666
5	PK2	Using ERP makes it easier to control work	0.825
	PK1	My job becomes more difficult without ERP	0.819
	PK3	Using ERP improves my work performance	0.659
6	FS2	I feel myself important when using ERP at work	0.795

Source: Author's Processed Results, 2024

Based on the above table, the researcher tried to name the factors by identifying each statement item and the relationship between each item in one factor.

1. Factor 1
   Factor 1 consists of eight statement items originating from the variable Perception of Ease of Use, namely items PKP5, PKP8, PKP4, PKP7, and PKP9, and the variable Utilization of Information Technology, namely items PT1, PT3, and PT2. Based on this grouping, a new factor was named the Convenience Factor.

2. Factor 2
   Factor 2 consists of six statement items originating from the Perception of Usefulness variable, namely items PK8, PK7, PK9, PK5, PK10, and PK6. Based on this grouping, a new factor was named, namely the Effectiveness Factor.

3. Factor 3
   Factor 3 consists of four statement items originating from the Perception of Ease of Use variable, namely the PKP6 item, the Attitude variable, namely the items S1 and S2, and social factor variables, namely items FS1. Based on this grouping, a new factor was named the Behavioral Factor.
4. Factor 4
   Factor 4 consists of three statement items originating from the Perception of Ease of Use variable, namely items PKP3, PKP2, and PKP1. Based on this grouping, a new factor was named the Understanding Factor.

5. Factor 5
   Factor 5 consists of three statement items originating from the Perception of Usefulness variable, namely items PK2, PK1, and PK3. Based on this grouping, a new factor name was given, namely the Performance Factor.

6. Factor 6
   Factor 6 consists of one statement item originating from the Social Factor variable, namely item FS2. Based on this grouping, a new factor is named the Important Factor.

4.3. Discussion

The three factors with the highest application value were Attitude, Social Factors, and Perceived Usefulness. The high level of implementation of the attitude indicator indicates that employee attitudes can influence the implementation of ERP at PT. HSK. The Social Factor with the second highest level of acceptance after attitude indicates that employees think that implementing an ERP information system is very important to achieve more optimal performance. The application of the Perception of

Usefulness factor indicates employee perceptions that the use of the ERP information system is useful in making work easier.

The two factors with the lowest application value are Perceived Ease of Use and Utilization of Information Technology. The low level of implementation of the Perceived Ease of Use indicator indicates that employees think that the ease of use of the ERP information system is not optimal. The value of applying Information Technology shows that its use is not optimal.

The results show that there are 6 (six) new elements influence the implementation of ERP information systems. Based on the Variance Explained value, as shown in Table 4, it is known that two important components determine the implementation of the ERP information system at PT. HSK. The Convenience factor (factor 1) can be considered the most dominant determining factor in the implementation of ERP information systems at PT. HSK with a score of 44.69%. Furthermore, the Effectiveness factor (factor 2) can explain 8.475%. Then, the Behavioral factor (factor 3) can explain 8.215%. Then, the Understanding factor (factor 4) can explain 6.761%. Then, the performance factor (factor 5) can explain 5.839%. The last factor is the important factor (factor 6), which can explain 4.744% of the variance.

Based on the previous framework, there are 5 (five) determining factors for implementing an ERP information system. Meanwhile, based on the results of research data processing, these five (five) factors become six (six) factors that influence the implementation of an ERP information system at PT. HSK. Below are the forms of these factors:

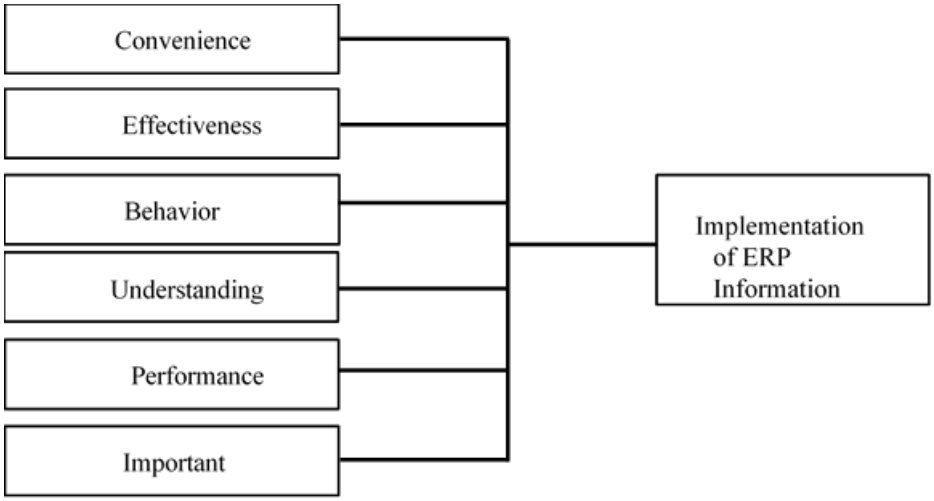

Figure 4. Determining Factors for Implementing ERP Information Systems at PT. HSK

5. Conclusion

5.1. Conclusion

The author can draw conclusions that answer the formulation of this research problem based on the results of data collection, processing, and analysis. Among the 25 theoretical variables that influence the use of ERP, six variables influence the use of ERP information systems at PT. HSK. Based on the Variance Explained value with data processing using SPSS version 25, it is known that the six factors are the Convenience Factor (Factor 1) with a value of 44.69%, the effectiveness factor (Factor 2) can explain 8.475%, the behavior factor (Factor 3) can explain 8.215%, the understanding factor (Factor 4) can explain 6.761%, the performance factor (Factor 5) can explain 5.839%, and the importance factor (Factor 6) can explain 4.744%.

Of the six new factors formed, the one that has the most influence on technology acceptance is the convenience factor. This convenience factor is very important because regardless of how sophisticated the technology is, if it is difficult to use, it will also be difficult to apply it.

5.2. Limitation

Based on researcher experience in this research process, there are several limitations that future researchers can pay more attention to in order to improve their research. The first limitation in this research is that the number of respondents was 137, which is certainly not enough to describe the real situation. Second, the research object focused on only one company (PT. HSK). Last but not least, the process of collecting data and the information provided by respondents through the questionnaires sometimes doesn't show their "true opinions" because there are differences in thoughts, assumptions, honestly, and understanding among each respondent.

5.3. Suggestion

For a company, the implementation of an ERP information system will be more accepted by employees by paying attention to the new factors that are formed, especially the convenience factor. The development of an ERP information system must pay attention to the ease of use of the ERP information system. Employees must also feel that using this ERP information system can speed up and make their work easier by being provided with a good usage guide, including guidance, if there are obstacles or problems in the usage process. Apart from that, it is a good idea to carry out regular training and evaluation of employees using ERP information systems within a certain period of time carried out by the software development team. This is done to see the effectiveness of using the ERP information system and to see whether there are any obstacles to its use.

Researchers are expected to improve their research by including additional factors that have not been discussed and tested in this research, or by conducting exploratory factor analysis to find broader factors that influence the implementation of ERP information systems. Future research is also expected to measure the number of ERP information systems used in other institutions. This study aims to use it as a standard for developing ERP information systems..

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