

The Influence of Organisational Climate in ERP Implementation on Information System Service Quality and User Satisfaction: A Study on an Indonesian Petrochemical Company

— *Review of* —
**Integrative
Business &
Economics**
— *Research* —

Dadang Amiruddin
Postgraduate of Business Administration, Padjadjaran
University, Indonesia

Sam'un Jaja Raharja*
Department of Business Administration, Padjadjaran University, Indonesia

Margo Purnomo
Department of Business Administration, Padjadjaran University, Indonesia

ABSTRACT

This study aimed to 1) identify non-technical factors influencing the implementation of Enterprise Resource Planning (ERP) system and 2) determine the influence of organisational climate on system, information, and service quality of company and its implications on user satisfaction in the petrochemical manufacturing industry. The study procedures were carried out using a quantitative method and questionnaires. In addition, the sample population comprised employees who were ERP system users from 5 managerial levels, including General Manager, Department Manager, Section Manager, Superintendent, and Supervisor. The data obtained were analysed using Structural Equation Modelling Partial Least Squares (SEM-PLS). The results of this study showed the significance of organisational climate in determining critical success factors for ERP implementation, including system, service, and information quality, leading to user satisfaction, were determined by both system and information quality. The findings also revealed that non-technical factors in organisations, namely organisational climate, determined the success of ERP implementation in company in the petrochemical manufacturing company.

Keywords: Organisational climate, service quality, information quality, system quality, user satisfaction.

Received 8 February 2024 | Revised 17 May 2024 | Accepted 27 June 2024.

1. INTRODUCTION

The concept of the Fourth Industrial Revolution was initially introduced at the Hannover Fair, held from April 4th to 8th, 2011. This concept was coined by the German Government and indicated a pivotal shift in the industrial landscape propelled by technological advancements. In addition, Industrial Revolution 4.0 serves as a directive to facilitate the industrial sector to new heights through the integration of cutting-edge technology. Several studies have also shown that it advocates for global enterprises to enhance their productivity by leveraging information technology (IT) in their operations. This includes the adoption of various tools, such as *information system*, *the Internet of Things (IoT)*,

artificial intelligence (AI), cloud computing, big data analytics, among others.

According to previous studies, Industry 4.0 plays an essential role in both the production and service sectors, reshaping the way businesses operate. The advancement of IT has also profoundly influenced various facets of human life, including Petrochemical Company in Indonesia. Therefore, the integration of IT in Petrochemical Company in Indonesia is imperative. Effectively managing the resources at Petrochemical Company in Indonesia necessitates the implementation of an integrated system capable of enhancing performance. Tahat et al. (2017) demonstrated that leveraging IT could significantly enhance organisational performance. Another study by Sadikoglu & Zehir (2010) revealed the essential role of IT as a cornerstone for company performance. Consequently, strategic management of IT usage holds the potential to drive improvements in company performance.

Petrochemical Company in Indonesia is the largest integrated petrochemical company in Indonesia, operating the sole Naphtha Cracker facility in the country. The latest data shows that this company is the largest company among publicly listed petrochemical companies totaling 28 companies. Total outstanding shares reached 26.78% (86.51 billion shares) and capitalisation value reached 81.88% (IDR 666.14 trillion) of the total 28 listed petrochemical companies (<https://www.chandra-asri.com/>). This can be seen in the following table;

Table 1 Listed of Petrochemical Company in Indonesia (December 2023)

No	Ticker Name	Number of shares outstanding	Proportional Shares (%)	Capitalisation	Proportional Capitalisation (%)
1	ADMG	3.890.000.000	1,20%	482.260.000.000	0,06%
2	AGII	3.070.000.000	0,95%	5.520.000.000.000	0,68%
3	AKPI	612.250.000	0,19%	367.350.000.000	0,05%
4	APLI	1.360.000.000	0,42%	742.660.000.000	0,09%
5	AVIA	61.950.000.000	19,18%	32.530.000.000.000	4,00%
6	BMSR	1.160.000.000	0,36%	417.310.000.000	0,05%
7	BRPT	93.750.000.000	29,02%	91.870.000.000.000	11,29%
8	CHEM	1.700.000.000	0,53%	115.600.000.000	0,01%
9	CLPI	306.340.000	0,09%	324.720.000.000	0,04%
10	DPNS	331.130.000	0,10%	137.750.000.000	0,02%
11	EKAD	3.490.000.000	1,08%	789.620.000.000	0,10%
12	ESSA	17.230.000.000	5,33%	1.430.000.000.000	0,18%
13	FPNI	5.570.000.000	1,72%	996.300.000.000	0,12%
14	INCI	2.076.600.000	0,64%	109.020.000.000	0,01%
15	KKES	1.500.000.000	0,46%	75.000.000.000	0,01%
16	LTLS	1.560.000.000	0,48%	1.640.000.000.000	0,20%
17	MDKI	2.530.000.000	0,78%	473.140.000.000	0,06%
18	MOLI	2.720.000.000	0,84%	653.770.000.000	0,08%
19	NFGE	3.240.000.000	1,00%	162.010.000.000	0,02%
20	OBMD	805.990.000	0,25%	209.560.000.000	0,03%
21	OKAS	2.370.000.000	0,73%	23.022.000.000	0,00%
22	SAMF	5.120.000.000	1,59%	3.480.000.000.000	0,43%
23	SBMA	929.930.000	0,29%	132.050.000.000	0,02%
24	SMLE	2.330.000.000	0,72%	232.810.000.000	0,03%
25	SRSN	6.020.000.000	1,86%	301.000.000.000	0,04%
26	TDPM	10.490.000.000	3,25%	1.250.000.000.000	0,15%
27	TPIA*	86.510.000.000	26,78%	666.140.000.000.000	81,88%
28	UNIC	3.890.000.000	0,12%	2.980.000.000.000	0,37%
Total		323.005.570.000	100,00%	813.584.952.000.000	100,00%

Sources: <https://lembarsaham.com/daftar-emiten/industrial/B11/barang-kimia?page=1>,
<https://lembarsaham.com/daftar-emiten/industrial/B11/barang-kimia?page=2>

Note: * *TPIA* is Ticker Name of Chandra Asri as Petrochemical Company in Indonesia

Based on table 1 above, it can be seen that Petrochemical Company in Indonesia is the largest company in Indonesia in the field of Petrochemical. Thus, the dynamics, developments that occur in the Company will affect the development of petrochemical business in Indonesia and will also affect the increase and decrease of the Composite Stock Index on the Indonesia Stock Exchange. Thus, the determination of this company as a research location reflects the overall picture of the industry in similar industries

Efficient management of company resources necessitates an integrated system capable of enhancing total performance. Previous reviews indicated that using IT could significantly enhance organisational performance (Tahat *et al.*, 2017). Given its crucial role, effective management of the technology is necessary for optimising company performance (Sadikoglu & Zehir, 2010).

In line with several reports, IT has facilitated transformations across various domains, including manufacturing, agriculture, transportation, and education. This transformation shows a growing imperative for organisation to embrace IT, exemplified by the widespread adoption of Enterprise Resource Planning (ERP) system. Petrochemical Company in Indonesia, for instance, has been using ERP system since 1995. The proliferation of ERP system worldwide reflects the need to adapt to dynamic environments and transcend the constraints of legacy system (Kallunki *et al.*, 2011). The escalating integration of IT in company has been reported to foster the advancement of IT company, exerting a significant influence on effectiveness, efficiency, and organisational competitiveness. Studies by Kulikov *et al.* (2020) and Mahraz *et al.* (2020) revealed that ERP system enhanced competitiveness and company performance. Information and Communication Technology (ICT) in the corporate sector emerges as a catalyst for efficiency, improved performance, sustained competitiveness, and heightened profitability (Stanimirovic, 2015). In the contemporary business landscape, the adoption of information system is imperative for company striving for competitiveness and sustainability. ERP system emerges as an essential choice for company seeking to streamline operations effectively and efficiently. Shao *et al.* (2015) also showed that company transitioned to ERP system to optimise operational, tactical, and strategic processes, thereby enhancing efficiency and effectiveness.

Based on the results, this current study presents organisational climate as a crucial determinant influencing system quality, information quality, service quality, and user satisfaction, which collectively measure the success of ERP system implementation. Several studies showed that organisational climate referred to the collective atmosphere surrounding organisation, comprising the interplay of individual characteristics, organisational dynamics, and environmental factors influencing individual behaviour. In addition, key components of organisational climate include managerial competence, workload balance, task clarity, team cohesion, ethical standards, and employee participation (Revida & Munthe, 2020). When employees perceive alignment between work roles and organisational objectives, their resistance to change tends to diminish (Suryanarayana, 2023). The incorporation of organisational climate as a variable shaping the DeLone & McLean model's framework for evaluating ERP system implementation success presents an intriguing avenue for study, particularly in the automotive sector company in Indonesia.

The DeLone & McLean model explains that the successful use of a system assesses how system usage influences user satisfaction (Lowry *et al.*, 2007). According to the model, system and information quality indirectly affect individual and organisational outcomes through use and user satisfaction dimensions (DeLone & McLean, 1992). User satisfaction

is the level where individuals believe that the use of the system can improve their performance (Davis, 1989). Several reviews suggest that user satisfaction plays a crucial role in the success of information system, as individuals who trust the information system, they use tend to feel more comfortable and confident, potentially improving the performance in completing delegated responsibilities (Mardiana *et al.*, 2015). Therefore, this study investigates the influence of Organisational Climate in ERP Implementation on system quality, information quality and service quality and implication on user satisfaction in ERP system at Petrochemical Company in Indonesia

2. LITERATURE REVIEW

2.1 Organisational climate in the success of ERP system implementation

Organisational climate comprises the collective perceptions of employees regarding the internal workings of organisation, influencing behaviour and attitude (Burton *et al.*, 2004). According to Pritchard & Karasick (1973, it is a stable characteristic shaped by the actions and policies of all members, particularly senior leadership, which is universally perceived in organisation. These perceptions form the backdrop against which organisational context is understood and decisions are made. Employees represent the cornerstone of organisation, driving the implementation of strategies and goals (Rufino, 2023). Forehand & Gilmer (1964) assert that organisational climate comprises enduring descriptors of organisational traits (Toulson & Smith, 1994). Litwin & Stringer, as cited by Toulson & Smith (1994), conceptualise organisational climate as a factor directly or indirectly measurable within the workplace, with implications for employees' motivation and behaviour.

In line with previous studies, organisational climate significantly influences the behaviour and performance of members, consequently influencing the overall organisational performance. This influence can manifest both positively and negatively. For instance, when there is disharmony between superiors and subordinates, an uncomfortable workspace, or low job satisfaction, it often leads to diminished performance among organisational members. Meanwhile, harmonious relationship between superiors and subordinates, coupled with a comfortable workspace and high job satisfaction, tends to foster high performance among organisational members. The leadership style adopted in organisation also plays an essential role in shaping individual perspectives on performance. Several studies also showed that it held the power to either enhance or hinder employees' performance, thereby influencing their motivation to stay. When employees perceive a sense of purpose and meaning in their roles, as highlighted by Bautista & Uy (2023), these individuals are more likely to be motivated and committed to their tasks.

According to previous studies, system quality represents a crucial aspect of information system, as emphasised by Delone & McLean (2003). A system is deemed effective when it is actively used by the intended users, reflecting their perception of the quality. In this framework, the ease of use of ERP system emerges as a key factor influencing users' assessments of system quality. The results of Chiawah (2019) further corroborate this, revealing a significant positive correlation between ERP system quality and ease of use. In addition, it is also essential to note that while there is no universally applicable metric for "System Quality" (Delone & McLean, 2003), certain consistent and validated measurements exist. One such critical dimension is information quality, representing the desirable characteristics of system output. Information, as defined by DeLone & McLean (2016), is the outcome of data processing in information system, which can yield either high-quality or poor results. This indicates that evaluating information quality is essential, with metrics, such as relevance, usefulness, understandability, accuracy, reliability, real-time availability, completeness, and timeliness serving as reliable

variables for assessment.

Service quality in information system organisation, as provided by IT personnel, significantly influences user satisfaction and individual performance. Consequently, it warrants inclusion as a pivotal dimension in the success model of information system, as proposed by DeLone & McLean (2003). This updated model recognises the importance of service quality in gauging the effectiveness of information system. The measurement framework for service quality comprises accuracy, reliability, technical competence, and empathy demonstrated by IT staff. DeLone & McLean (2003) assert that "Use" represents the extent and manner in which employees and customers leverage the capabilities of information system. This entails considerations, such as the frequency, nature, suitability, degree, and purpose of system use. Highlighting the centrality of "Use" in assessing information system success, it becomes imperative to focus on how effectively and extensively system is used post-implementation. Understanding the patterns and benefits derived from system use serves as a key indicator of successful implementation and system effectiveness in organisation.

Organisational climate, defined as employees' perception of the internal environment of organisation, exerts a significant influence on employee behaviour over an extended period. A conducive organisational climate can enhance service quality, information quality, and system quality during the successful implementation of ERP system. Environments fostering innovation, experimentation, and continuous learning are particularly conducive to the introduction of new system. In addition, it is essential that employees feel at ease with the implementation of the ERP system and actively develop the requisite skills.

2.2 ERP system for user satisfaction

The use of ERP presented significant challenges for company, often being difficult, time-consuming, and expensive (Shehab et al., 2004). Therefore, the collaboration between user expectation and the quality of information, system, and service played a crucial role in determining the system success (Hariwibowo & Setiawan, 2020).

DeLone & McLean Information System Success Model (D&M IS Success Model), developed by William DeLone and Ephraim McLean, provided a valuable framework for comprehending the multidimensional success of information system. Based on the Communication Theory by Shannon & Weaver, W. (1949) and Mason, (1978), the model offered insights into various aspects of the system success.

System quality, a key attribute of an information system, was characterised by its usability and user perception (DeLone & McLean, 2003). Chiawah (2019) described a positive relationship between the system quality and the ease of use. Although there was no universal measure for "System Quality" (DeLone & McLean, 2003), certain metrics could be consistently applied and validated. Information quality, another essential aspect, was referred to as the desirable characteristic of system output (DeLone & McLean, 2016). It covered factors such as relevance, usefulness, understandability, accuracy, reliability, real-time availability, completeness, and timelines.

Service quality referred to the support received by system users from IT organisations and personnel, contributing significantly to individual performance and thereby considered a dimension of information system success (DeLone & McLean, 2003). It covered aspects such as accuracy, reliability, technical competence, and empathy of IT staff.

User satisfaction served as an important indicator in verifying the total success of the information system (Urbach *et al.*, 2009). It showed the perceived improvement in service levels or system performance by users (S.- K. Lee & Yu, 2012). For instance, user satisfaction included the aspect of reports, websites, and support services (Ives *et al.*, 1983).

Based on the aforementioned explanations, the following hypotheses were proposed :

H1 : Organisational climate has a significant positive influence on system quality.
 H2 : Organisational climate has a significant positive influence on information quality.
 H3: Organisational climate has a significant positive influence on service quality.
 H4 : System Quality has a significant positive effect on user satisfaction
 H5 : Information Quality has a significant positive effect on user satisfaction
 H6 : Service Quality has a significant positive effect on user satisfaction

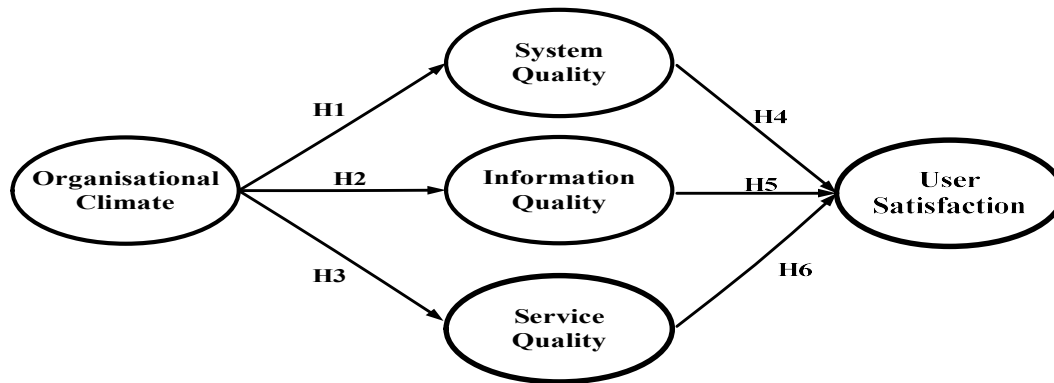


Figure 1. Study Conceptual Framework

3 METHOD

This study used quantitative method by distributing questionnaires using Likert, which was delivered to respondents using a 5-point scale, namely 5= strongly agree, 4= agree, 3= disagree, 2= disagree, and 1= strongly disagree. In addition, the study population comprised 222 employees across 5 levels of Petrochemical Company in Indonesia. Sampling was conducted using side probability, such as stratified random sampling method.

Data analysis method was performed using Structural Equation Modelling Partial Least Squares (SEM-PLS) with SmartPLS 3.2.9 software. The first stage was an evaluation of the measurement model, which included individual verification of Convergent Validity (seen from outer loading and AVE values), Discriminant Validity (seen from cross loading values), Fornell-Larcker Criterion Test, Heterotrait-Monotrait Ratio (HTMT Test), and Composite Reliability Test, as well as structural model evaluation. Meanwhile, the second stage was hypothesis testing with a bootstrapping process that produced a calculated T value.

Table 2. Study Samples

Position	Sample Size
1. General Manager	13
2. Department Manager	22
3. Section Manager	58
4. Superintendent	39
5. Supervisor	90
Total	222

4 MEASUREMENTS

The scale used to assess non-technical factors in the successful implementation of system information system was ERP, which was a factor of organisational climate with reference to Renato Tagiuri *et al.*, (1968), George H Litwin & Stringer Jr., (1968), Owen Jones, (1991), (Stringer, (2002), Burton *et al.*, (2004), Pritchard & Karasick, (1973), Forehand & Von Haller, (1964) old Toulson & Smith, (1994) and (Wirawan, 2008). In addition, organisational climate was measured through indicators that characterised the variable, which were operationalised into 7 statements, using an instrument in the form of a questionnaire.

The success model of ERP System implementation using Delone & McLean (2003) was measured through indicators that characterised the variable, operationalised into 27 statements, and categorised into 3 variables, including System Quality Variables, Information Quality Variable, and Service Quality Variable. The variables were measured using an instrument in questionnaire form with 6, 6, and 16 statement indicators, respectively. User satisfaction with ERP was measured using 4 items, as outlined by Akrong *et al.* (2022), Nelson *et al.* (2005), and Sedera & Tan (2005). The items evaluated user satisfaction with various aspects of the system, including its functionality, support, and total satisfaction.

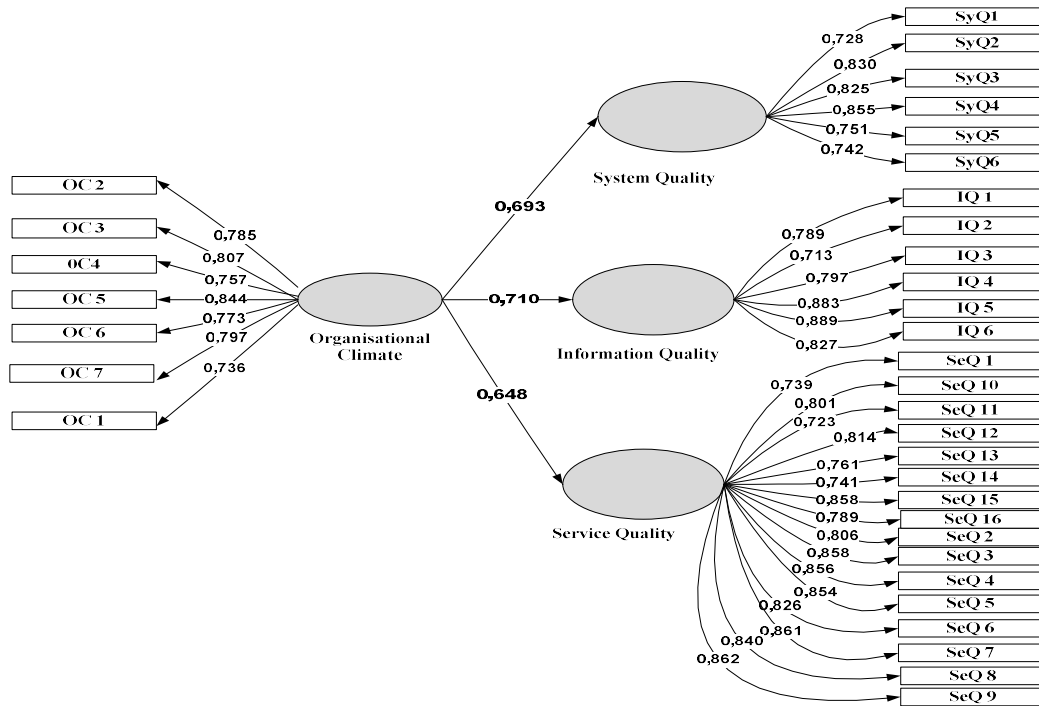
5 RESULT

PLS algorithm analysis improved the model based on the outer loadings. According to Ghozali (2014), indicators with outer loadings values below 0.6 in the explanatory model analysis must be excluded from the model. Figure 2 and Figure 3 illustrated the analysis of the final model with a loading factor value above 0.7 was ideal. This indicated that the indicator was significant for the measurement of variables.

Based on the presentation of data in Table 3, the test analysis *construct reliability and validity* for each indicator required Cronbach's alpha value of > 0.7 , while composite reliability required a value of > 0.6 . In terms of average variant extracted (AVE), the value must be > 0.5 for a good model (Ghozali, 2008). Consequently, the distribution of Outer Loadings data met the criteria above 0.7. Cronbach's Alpha value for each variable was above 0.7, Composite Reliability value on each variable was above 0.6, and the AVE value on each variable was above 0.5. All variables and indicators had met the established value standards.

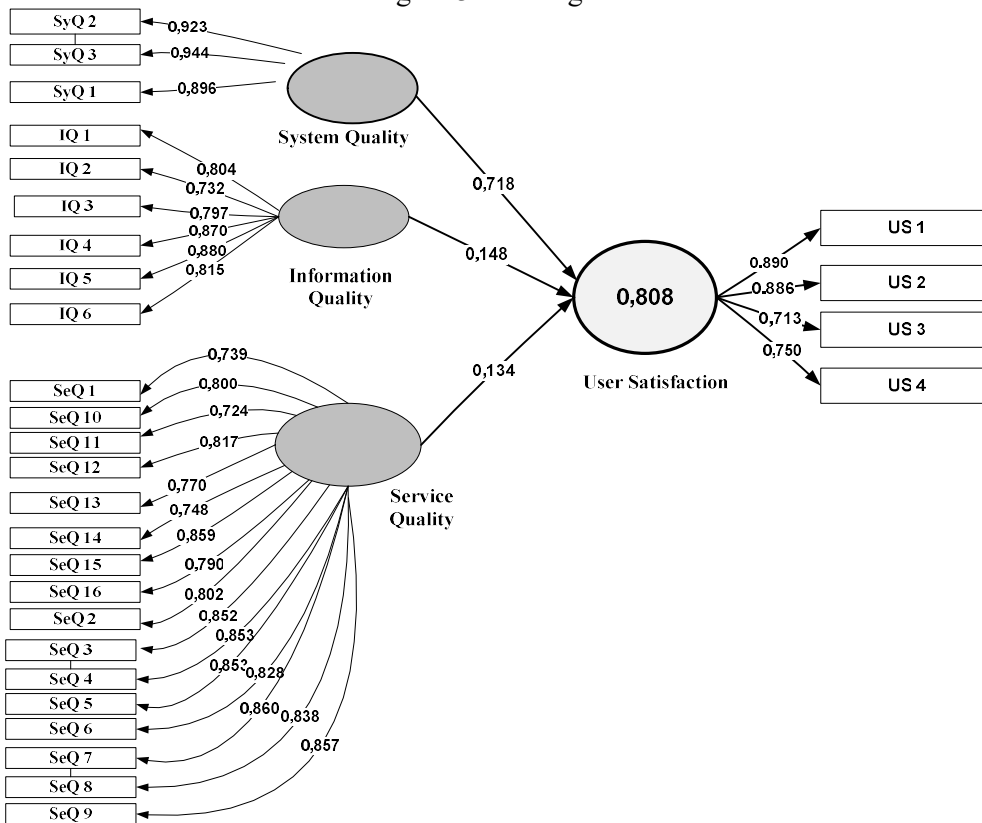
Based on the data presented in Table 4, reliability testing of constructs was conducted by examining the values of composite reliability and Cronbach's alpha. A composite reliability value exceeding 0.7 was considered satisfactory, while Cronbach's alpha above 0.6 indicated construct reliability. Additionally, for the average variance extracted (AVE), a value greater than 0.5 signified a good model (Ghozali, 2008). The results of reliability testing showed that Cronbach's alpha, composite reliability, and AVE values for each variable exceeded the established standards, indicating all variables and indicators met the required criteria.

Figure 2. PLS Algorithm in SmartPLS



Source: Obtained using SmartPLS software

Figure 3. PLS algorithm in SmartPLS



Source: Obtained using SmartPLS software

Table 3. Results of a Reflective Model Organisational Climate on system quality, information quality and service quality

Variables	Indicators	Outer Loadings	Cronbach's Alpha	Composite Reliability	AVE
Organisational Climate	OC2	0.785	0.897	0.919	0.618
	OC3	0.807			
	OC4	0.757			
	OC5	0.844			
	OC6	0.773			
	OC7	0.797			
System Quality	SyQ1	0.728	0.878	0.908	0.624
	SyQ2	0.830			
	SyQ3	0.825			
	SyQ4	0.855			
	SyQ5	0.751			
	SyQ6	0.742			
Information Quality	IQ1	0.789	0.900	0.924	0.670
	IQ2	0.713			
	IQ3	0.797			
	IQ4	0.883			
	IQ5	0.889			
	IQ6	0.827			
Service Quality	SeQ1	0.739	0.966	0.969	0.661
	SeQ2	0.806			
	SeQ3	0.858			
	SeQ4	0.856			
	SeQ5	0.854			
	SeQ6	0.826			
	SeQ7	0.861			
	SeQ8	0.840			
	SeQ9	0.862			
	SeQ10	0.801			
	SeQ11	0.723			
	SeQ12	0.814			
	SeQ13	0.761			
	SeQ14	0.741			
	SeQ15	0.858			
	SeQ16	0.789			

Source: Obtained using SmartPLS software

Table 4. Results of a Reflective Model System Quality, Information Quality and Service Quality on User Satisfaction

Variable	Indicator	Outer Loadings	Cronbach's Alpha	Composite Reliability	AVE
System Quality	SyQ1	0.896	0.910	0.944	0.848
	SyQ2	0.923			
	SyQ3	0.944			
Information Quality	IQ1	0.804			
	IQ2	0.732			

	IQ3	0.797	0.900	0.924	0.669
	IQ4	0.870			
	IQ5	0.880			
	IQ6	0.815			
Service Quality	SeQ1	0.739	0.966	0.969	0.661
	SeQ2	0.802			
	SeQ3	0.852			
	SeQ4	0.853			
	SeQ5	0.853			
	SeQ6	0.828			
	SeQ7	0.860			
	SeQ8	0.838			
	SeQ9	0.857			
	SeQ10	0.800			
	SeQ11	0.724			
	SeQ12	0.817			
	SeQ13	0.770			
User Satisfaction	US1	0.890	0.831	0.886	0.662
	US2	0.886			
	US3	0.713			
	US4	0.750			

Source: Obtained using SmartPLS software

• **Discriminant validity**

Discriminant validity tests are conducted to assess whether two instruments measuring different constructs are correlated. This test adopted the Fornell-Larcker Criterion, which showed variables’ validity when it had a greater correlation compared to the correlation between different variables (Chin, 1998). Table 4 showed the correlation value of the variable organisational climate, which was high compared to other variables, indicating the presence of good discriminant validity. In this case, the Fornel-Larcker Criterion value with the lowest value was Information Quality 0.819. The value was greater than the correlation between the variables of Organisational Climate 0.710, Service Quality 0.581, and System Quality 0.799.

Table 5. Fornell–Larcker Criterion to Discriminant Validity of the Model

	Information Quality	Organisational Climate	Service Quality	SystemQuality
Information Quality	0.819			
Organisational Climate	0.710	0.786		
Service Quality	0.581	0.648	0.813	
System Quality	0.799	0.693	0.523	0.790

Source: Obtained using SmartPLS software

Measurement *path-coefficient* was used to describe the relationship between study variables, with a significant level of 0.05, hence, hypotheses with T Statistics >1.96 were accepted (Ghozali, 2014; Hair Jr et al., 2017). To determine the influence between variables with *Original Sample*, there was a positive or negative sign on the value. Therefore, when the value *Original Sample* had a positive sign, any increase or decrease in the independent variable must increase or decrease the value of the dependent variable. When the value of

the path coefficient was marked negative, then every increase in the independent variable should decrease the dependent variable and vice versa (Ghozali, 2014).

- **Discriminant validity**

Discriminant validity tests are conducted to assess whether two instruments measuring different constructs are correlated. This test adopted the Fornell Larcker criterion, comparing the square root of AVE with the correlation between latent variables. According to the criterion, when the correlation between the main construct and the measurements exceeded that with other constructs, the latent construct better predicted the indicators (Chin, 1998). Table 5 presented that Information quality variable had a higher correlation compared to others, indicating good discriminant validity. Specifically, information quality showed the lowest Fornell-Larcker Criterion value of 0.818, exceeding the correlation between service quality, system quality, and user satisfaction.

Table 6. Fornell–Larcker Criterion to Discriminant Validity of the Model

	Information Quality	Service Quality	System Quality	User Satisfaction
Information Quality	0.818			
Service Quality	0.584	0.813		
System Quality	0.701	0.416	0.921	
User Satisfaction	0.730	0.519	0.878	0.814

Source: Obtained using SmartPLS software

The measurement path coefficient described the influence between variables at a significant level of 0.05. A T-statistics value exceeding 1.96 indicated acceptance of hypotheses (Ghozali, 2014; Hair Jr *et al.*, 2017). Moreover, the positive or negative sign of the path coefficient in the original sample showed the direction of influence between variables. A positive sign indicated that an increase or decrease in the independent variable would affect the dependent variable in the same direction, while a negative sign indicated an inverse relationship (Ghozali, 2014).

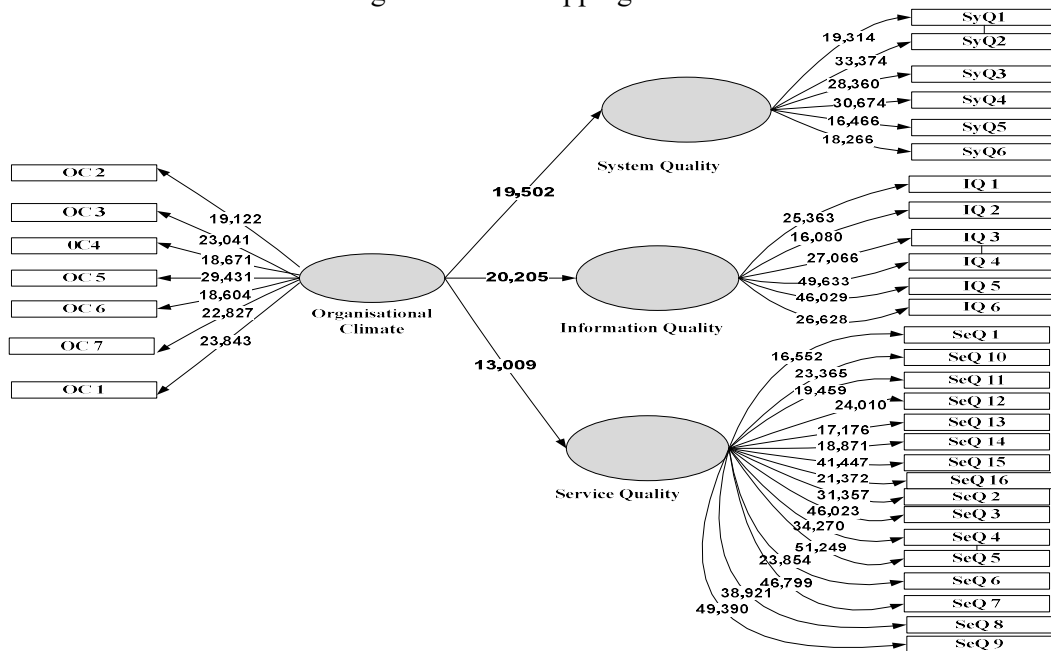
Based on the bootstrapping analysis results in Figure 4 and Table 7, **H1** : revealed that organisational climate had a significant positive influence on system quality. T Statistics had a value of 19,502, which was >1.96 , while *the original sample* had a positive value of 0.693. **H2** : organisational climate had a significant positive influence on information quality. T Statistics had a value of 20,205, which was more than >1.96 , while *the original sample* had a positive value of 0.710. **H3** : organisational climate had a significant positive influence on service quality. T Statistics had a value of 13,009 more than >1.96 , while the *original sample* had a positive value of 0.648.

Table 7. Structural Model

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ((O/STDEV))
Organisational Climate → System Quality	0.693	0.700	0.036	19.502
Organisational Climate → Information Quality	0.710	0.716	0.035	20.205
Organisational Climate → Service Quality	0.648	0.655	0.050	13.009

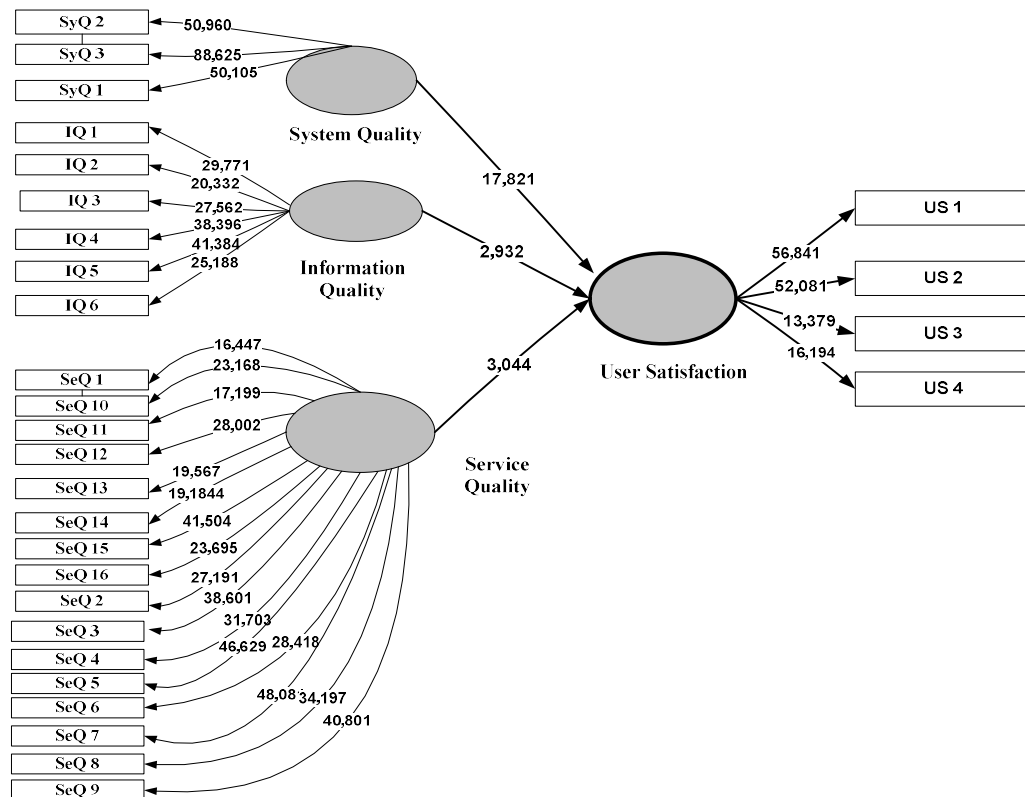
Source: Obtained using SmartPLS software

Figure 4. Bootstrapping in SmartPLS



Source: Obtained using SmartPLS software

Figure 5. Bootstrapping in SmartPLS



Source: Obtained using SmartPLS software

Table 8 Structural Model Organisational Climate on System Quality, Information Quality, and Service Quality

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)
Organisational Climate → System Quality	0.693	0.700	0.036	19.502
Organisational Climate → Information Quality	0.710	0.716	0.035	20.205
Organisational Climate → Service Quality	0.648	0.655	0.050	13.009

Source: Obtained using SmartPLS software

Table 9. Structural Model System Quality, Information Quality and Service Quality on User Satisfaction

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)
System Quality → User Satisfaction	0.718	0.719	0.040	17.821
Information Quality → User Satisfaction	0.148	0.148	0.050	2.932
Service Quality → User Satisfaction	0.134	0.132	0.044	3.044

Source: Obtained using SmartPLS software

Based on the bootstrapping analysis results in Figure 5 and Table 8, H4 suggested that system quality significantly influenced user satisfaction, with a T-statistics value of 17.821 and a positive original sample value of 0.718. H5 indicated a significant effect of information quality on user satisfaction, supported by a T-statistics value of 2.932 and a positive original sample value of 0.148. Finally, H6 proposed a significant effect of service quality on user satisfaction, with a T-statistics value of 3.044 and a positive original sample value of 0.134.

6 DISCUSSION

H1: The Influence of Organisational Climate on System Quality

The results of the hypothesis test were consistent with several previous studies (Akrong, Shao, *et al.*, 2022; Akrong, Yunfei, *et al.*, 2022; H. Lin, 2011). Organisational climate referred to the perception of organisational members, such as individuals and groups also related to organisation. Support referred to the perception of tolerance of organisational behaviour by superiors, including allowing members to learn from their mistakes without fear and punishment (Koys & DeCotiis, 1991). Therefore, it was important to create organisational climate that supported the implementation and use of ERP System to achieve the desired quality and maximise the benefits of investment in the technology. Several studies showed that organisational climate influenced member productivity and organisational effectiveness and efficiency. This study showed that there were success factors for ERP implementation with non-technical measures. Success was measured by technical factors, such as hardware and software used by company. However, there were also non-technical factors, such as work situations, relationships between employees,

cooperation between employees, support, and job pressure.

The results were confirmed by General Manager, Department Manager, Section Manager, Superintendent, and Supervisor in the Production, Maintenance, Warehouse, Contract and Procurement, Human Resources, Accounting, and Sales Division that received support from the Top Management. The assistance provided, including the provision of quality computers and training for ERP system users, facilitated ease of use and learning, ensuring optimal use of ERP system features to meet employees' work needs. Regardless of the sophistication and power of ERP system used, without support from Top Management, inter-departmental cooperation, and comprehensive training, system could risk paralysis, reducing the use to mere data storage. Additionally, the company conducts plant maintenance every five years through Turn Around Maintenance (TAM), involving all divisions. Effective inter-divisional cooperation enhances ERP integration, enabling smooth and successful preparation, implementation, and post-TAM operations.

H2: The Influence of Organisational Climate on Information Quality

The results of the hypothesis test were in line with several previous reports (Akrong, Shao, *et al.*, 2022; Akrong, Yunfei, *et al.*, 2022). Organisational climate had a significant influence on the quality of information in an enterprise. In addition, organisational climate that supported good internal communication must ensure a smooth flow of information between different units or departments (Titang, 2013).

When transparency in policies, procedures, and decision-making were encouraged, there was often a tendency for better-quality information. This was necessary because employees needed to be informed and up-to-date to make informed decisions, and transparency helped prevent information from being hidden or distorted (Cascante *et al.*, 2002).

The results were confirmed by General Manager, Department Manager, Section Manager, Superintendent, and Supervisor in the Production, Maintenance, Warehouse, Contract, and Procurement Division, that ERP system as an integrated system required support and cooperation between divisions in the use. Inaccuracies or errors in data supplied by a division often had an influence on the quality of information generated by ERP system. In addition, the warehouse must be able to ensure the amount of spare parts available for factory machinery needs. When a machine was damaged, the warehouse must be able to repair it immediately to ensure the continued operation of the Production Division.

Therefore, the warehouse must obtain the right and correct data from several divisions, departments, or sections. Information on spareparts needed for each factory machine was supplied by the Maintenance division, while those on the time needed to get spare parts were supplied by the Contract and Procurement division. Therefore, the warehouse through ERP system could produce quality information to decide the value of the reorder point that must be used as a basis for purchasing spare parts according to the needs of factory machinery.

H3: The Influence of Organisational Climate on Service Quality

The results of the hypothesis test were in line with previous studies (Akrong, Shao, *et al.*, 2022; Akrong, Yunfei, *et al.*, 2022). Employee perceptions of company practices, such as organisational goal setting, communication, employee engagement, empowerment, teamwork, training, trust, creativity, rewards, and co-worker performance could influence perceptions of their ability to deliver high-quality service to customers (Indrastuti, 2020).

Service quality received by system users and the support of IT personnel was influenced by a supportive work environment, such as company cultural values and

stakeholder support (Delone & McLean, 2003). In addition, company adopting ERP must consider whether system was a strategic value (Saffu et al., 2012). Organisation comprised not only the structural frameworks but also the intangible aspects of organisational culture and values, which established norms and influenced employee behaviour. When organisational culture emphasised principles, such as teamwork, innovation, and a steadfast commitment to customer satisfaction, employees were inclined to engage with zeal and could significantly enhance service quality in system (Schneider et al., 2013).

Moreover, the support extended by management played a significant role in shaping organisational climate. Senior executives who demonstrated support, fairness, and a clear understanding of the significance of service quality could serve as catalysts for improved employee performance (Holloway, 2012). A positive organisational climate fostered an atmosphere where employees were motivated to deliver high-quality service, while a negative climate detrimentally influenced employee morale and effectiveness, thereby compromising service quality.

The results were confirmed by General Manager, Department Manager, Section Manager, Superintendent, and Supervisor in IT, Production, Maintenance, Warehouse, Contract and Procurement, Human Resources, Accounting, and Sales Divisions that in carrying out their activities, employees must apply *iSTAR* company value (*integrity, safety, teamwork, accountability, respect*). Company values shaped behaviour and made employees work professionally, cooperate and support each other, behave responsibly in every action, respect fellow employees, and prioritise work safety.

H4: The effect of system quality on user satisfaction

The hypothesis test results were in line with the observations of Abdillah *et al.* (2020), Al-Okaily *et al.* (2023), and Mohanty *et al.* (2022). However, system quality covered factors such as ease of use, system dependency, ease of learning, response time, and adaptability (Petter *et al.*, 2008), showing a significant relationship with user satisfaction.

Veeramootoo *et al.* (2018) expressed a significant relationship between information quality and service quality. Similarly, Pizarro-Uy *et al.* (2023) showed that support system quality, learner quality, instructor quality, and perceived usefulness all influenced users' satisfaction with the e-learning system. Previous reviews suggested that the substantial impact of system quality on service quality arose from the system's flexibility, simplicity, and quick response times, enhancing user-friendliness. Enhanced system quality resulted in clear information outputs and timely reports that met users' information needs.

The results were validated by the General Manager, Department Manager, Section Manager, Superintendent, and Supervisor across various divisions, including IT, Production, Maintenance, Warehouse, Contract and Procurement, Human Resources, Accounting, and Sales. They affirmed that ERP was user-friendly and facilitated ease of learning, accurate data processing, and streamlined workflow. System offered an integrated method, fostering collaboration between divisions and presenting a comprehensive view of the entire process from start to finish (end-to-end process). Features such as Preventive Maintenance helped the Maintenance division in scheduling periodic equipment maintenance, ensuring optimal machine lifespan, and preventing unplanned production downtime.

H5 : The effect of information quality on user satisfaction

The hypothesis test results were in line with the observation of Dessyana & Yolanda (2022), Gunasih (2021), and Ilmawawn & Pujani (2020) who indicated that information quality significantly influenced user satisfaction. ERP has various types of software, including systems, applications, and products in data processing, commonly abbreviated

as SAP. System integrated the business processes (Handini, 2017), facilitating efficient operations and aiding decision-making by company management. High-quality information expedited the decision-making process, allowing ERP users to quickly identify trends, problems, or opportunities (Sigalingging & Permatasari, 2021; Zai, 2014).

The results were validated by the General Manager, Department Manager, Section Manager, Superintendent, and Supervisor across various divisions such as IT, Production, Maintenance, Warehouse, Contract and Procurement, Human Resources, Accounting, and Sales. They attested that ERP provided quality information crucial for decision-making. System offered a comprehensive view of business processes from start to finish (end-to-end process). For instance, information related to purchasing goods or services included requisitioning, purchase approval status, goods or services delivery processes, and payment procedures, contributing to user satisfaction with ERP system.

H6 : The effect of service quality on user satisfaction

The hypothesis test results were in line with the observations of Hsu *et al.* (2006) and Isnaeningsih *et al.* (2021). A key factor contributing to user satisfaction with the system was the quality of service provided by ERP provider or internal IT department. Users tended to expect fast and responsive service from the provider when encountering problems or needing support. Having a competent technical support team and ensuring fast response times could significantly enhance user satisfaction (D. Lee *et al.*, 2010).

The results were validated by the General Manager, Department Manager, Section Manager, Superintendent, and Supervisor across departments such as IT, Production, Maintenance, Warehouse, Contract and Procurement, Human Resources, Accounting, and Sales. It was evident that the service quality of IT department services played an important role in the successful use of ERP. The services included addressing user issues promptly, delivering timely responses to user requests, and having knowledgeable and competent staff who could efficiently resolve any challenges.

7 CONCLUSION

In conclusion, this study showed that non-technical factors, such as organisational climate, could determine the success of ERP implementation at Petrochemical Company in Indonesia, which influenced critical success factors, including system quality, information quality, and service quality. Organisational climate which referred to the perception of employees to the internal environment of organisation could influence employees' behaviour as a determining factor in ERP implementation process. In addition, the role of ERP system was to manage all company operations effectively and efficiently. This could occur because ERP system was equipped with centralised data management, making decision support system for company to analyse and business policies more easily.

System quality, information quality, and service quality significantly enhanced user satisfaction in ERP system use at Petrochemical Company in Indonesia. Moreover, the results supported the DeLone & McLean (2003) model regarding the successful use of information system. System quality was associated with the ease of use and usability of ERP in the company. Information quality pertained to system ability to deliver crucial information effectively, and well-integrated data could streamline business processes and aid decision-making by company management. Lastly, the quality of service provided by ERP provider or internal IT department, characterised by fast and responsive assistance, was instrumental in addressing user needs and ensuring satisfaction.

ACKNOWLEDGEMENT

The authors would like to thank the anonymous reviewer for his/her helpful comments and suggestions.

REFERENCES

- [1] Al-Okaily, A., Al-Okaily, M., & Teoh, A. P. (2023), "Evaluating ERP systems success: Evidence from Jordanian firms in the age of the digital business", *VINE Journal of Information and Knowledge Management Systems*, 53(6), 1025–1040.
- [2] Akrong, G. B., Shao, Y., & Owusu, E. (2022), "Evaluation of organizational climate factors on tax administration enterprise resource planning (ERP) system", *Heliyon*, 8(6).
- [3] Bautista, Maria Paula Joan T; Uy, Chin. (2023), "The Effects of Organizational Culture and Leadership Style on Organizational Performance in Times of COVID-19 Pandemic", *Review of Integrative Business and Economics Research*; Hong Kong Vol. 12, Issue. 1, 175-194.
- [4] Burton, R. M., Lauridsen, J., & Obel, B. (2004). The impact of organizational climate and strategic fit on firm performance. *Human Resource Management*, 43(1), 67–82.
- [5] Chiawah, T. (2019). Relationship between Enterprise Resource Planning System and Organizational Productivity in Local Government. *ProQuest Dissertations and Theses*, 152.
- [6] Daneva, M., & Wieringa, R. (2010), "Requirements Engineering for Enterprise Systems: What We Know and What We Don't Know?", *In Intentional Perspectives on Information Systems Engineering*, 115–136
- [7] Davis, F. D. (1989). "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology", *MIS Quarterly*, 13(3), 319.
- [8] DeLone, W. H., & McLean, E. R. (2016). m. *Foundations and Trends® in Information Systems*, 2(1), 1–116. <https://doi.org/10.1561/29000000005>
- [9] Delone, W., & McLean, E. (2003). Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems*, 19(4), 9–30.
- [10] Dessyana, D., & Yolanda, Y. (2022), "The Effect of System Quality and Information Quality on Enterprise Resource Planning-System Application and Product In Data Processing (ERP-SAP) User Satisfaction At PT. Inalum (Persero) North Sumatra", *JIMAT (Scientific Journal of Accounting Students) Undiksha*, 13(01), 259–270.
- [11] Forehand & Gilmer. (1964). *Environmental variations in organisational climate. Psychological bulletin.*
- [12] Forehand, G. A., & Von Haller, G. (1964). Environmental variation in studies of organizational behavior. *Psychological Bulletin*, 62(6), 361–382.
- [13] Handini, A. D. (2017), "The Effect of Service Quality, System Quality And Information Quality Of SAP Application Information System On User Satisfaction And Individual Performance At The Head Office Of PT. Pupuk Kalimantan Timur", *FEBS Student Scientific Journal*, 6(1).
- [14] Hariwibowo, Ignatius Novianto., Setiawan, Wimpie Yustino., (2020), "Evaluating the Implementation of the Rural Financial System (SISKEUDES) in Wonogiri Regency, Indonesia: Success or Failure?", *Review of Integrative Business and Economics Research*, Vol. 9, Supplementary Issue 3, 101-114.
- [15] Hsu, J., Huang, C., & Hsu, P. (2006), "The exploration of top management support to the ERP project then influence user satisfaction–use the information, system,

- service quality, as the moderators”, *Proceedings of the Fourth Workshop on Knowledge Economy and Electronic Commerce*, 142–154.
- [16] Ilmawawn, M. R., & Pujani, V. (2020), ”Analyze the success of Enterprise Resource Planning using individual-level DeLone and McLean models”, *National Journal of Information Technology and Systems*, 6(1), 64–73.
- [17] Isnaeningsih, H. N., Fitriati, A., Pujiharto, P., & Astuti, H. J. (2021), “The influence Quality of information, System Quality and Service Quality on Satisfaction and User Performace”, *Journal of Business Management*, 12(2), 266–281.
- [18] Kallunki, J.-P., Laitinen, E. K., & Silvola, H. (2011). Impact of enterprise resource planning systems on management control systems and firm performance. *International Journal of Accounting Information Systems*, 12(1), 20–39.
- [19] Kulikov, I., Semin, A., Skvortsov, E., Ziablitckaia, N., & Skvortsova, E. (2020). Challenges of enterprise resource planning (ERP) implementation in agriculture. *Entrepreneurship and Sustainability Issues*, 7(3), 1847–1857.
- [20] Lee, D., Lee, S. M., Olson, D. L., & Hwan Chung, S. (2010), “The effect of organizational support on ERP implementation”, *Industrial Management & Data Systems*, 110(2), 269– 283.
- [21] Lee, S.-K., & Yu, J.-H. (2012), “Success model of project management information system in construction”, *Automation in Construction*, 25, 82–93.
- [22] Litwin, G. H., & Stringer Jr., R. A. (1968). *Motivation and organizational climate*. Boston : Division of Research, Graduate School of Business Administration, Harvard University
- [23] Lowry, P. B., Karuga, G. G., & Richardson, V. J. (2007), “Assessing leading institutions, faculty, and articles in premier information systems research journals”, *Communications of the Association for Information Systems (CAIS)*, 20(16), 142–203
- [24] Mahraz, M.-I., Benabbou, L., & Berrado, A. (2020). A compilation and analysis of critical success factors for the ERP implementation. *International Journal of Enterprise Information Systems (IJEIS)*, 16(2), 107–133.
- [25] Mardiana, S., Tjakraatmadja, J. H., & Aprianingsih, A. (2015), “DeLone–McLean information system success model revisited: The separation of intention to use-use and the integration of technology acceptance models”, *International Journal of Economics and Financial Issues*, 5(1), 172–182.
- [26] Mason, R. O. (1978), “Measuring information output: A communication systems approach”, *Information & Management*, 1(4), 219–234.
- [27] Mohanty, P. K., Sekhar, S. F. C., & Shahaida, P. (2022), “Determinants of ERP Adoption, User Satisfaction, and User Engagement”, *International Journal of Information System Modeling and Design (IJISMD)*, 13(1), 1–16.
- [28] Nelson, R. R., Todd, P. A., & Wixom, B. H. (2005), “Antecedents of information and system quality: an empirical examination within the context of data warehousing”, *Journal of Management Information Systems*, 21(4), 199–235.
- [29] Owen Jones, M. (1991). What if Stories Don’ t Tally with the Culture? *Journal of Organizational Change Management*, 4(3), 27–34.
- [30] Petter, S., DeLone, W., & McLean, E. (2008), “Measuring information systems success: models, dimensions, measures, and interrelationships”, *European Journal of Information Systems*, 17, 236–263.
- [31] Pizarro-Uy, Anna Corinna D., Manapat, Carlos L. (2023), “Evaluating the Culture of Online Learning and its Effectiveness Amidst the Covid-19 Pandemic”, *Review of Integrative Business and Economics Research*, Hong Kong Vol. 12, Issue. 2, 136-147

- [32] Pritchard, R. D., & Karasick, B. W. (1973). The effects of organizational climate on managerial job performance and job satisfaction. *Organizational Behavior and Human Performance*, 9(1), 126–146.
- [33] Revida, E., & Munthe, H. M. (2020). *Implementation Model of Tourism Village Policy to Enhance Community Participation at Meat Tourism Village Toba Samosir North Sumatra*.
- [34] Rufino, Henry D. 2023, “Performance Appraisal Quality, Performance Measures and Job Satisfaction of Universal Bank Employees”, *Review of Integrative Business and Economics Research*, Vol. 12(2), 167-181.
- [35] Sadikoglu, E., & Zehir, C. (2010). Investigating the effects of innovation and employee performance on the relationship between total quality management practices and firm performance: An empirical study of Turkish firms. *International Journal of Production Economics*, 127(1), 13–26.
- [36] Sedera, D., & Tan, F. (2005), “User satisfaction: an overarching measure of enterprise system success”, *PACIS 2005 Proceedings*, 80.
- [37] Shannon, C. E., & Weaver, W. (1949), *The Mathematical Theory of Communication*, Urbana: University of Illinois Press.
- [38] Shao, Z., Wang, T., & Feng, Y. (2015). Impact of organizational culture and computer self-efficacy on knowledge sharing. *Industrial Management and Data Systems*, 115(4), 590–611.
- [39] Sigalingging, E. D., & Permatasari, D. I. (2021), “The Effect of System Quality and Information Quality on User Satisfaction Enterprise Resource Planning-System Application and Product In Data Processing (ERP-SAP) with Perceived Usefulness as a Moderating Variable in Pelindo I (Persero) Sumatra”, *JIMAT (Scientific Journal of Accounting Students) Undiksha*, 12(1), 1046–1057.
- [40] Stanimirovic, D. (2015). A Framework for Information and Communication Technology Induced Transformation of the Healthcare Business Model in Slovenia. *Journal of Global Information Technology Management*, 18(1), 29–47.
- [41] Stringer, R. (2002). *Leadership and Organizational Climate Upper Saddle River. New Jersey: Printice Hall*. 453–468.
- [42] Suryanarayana, A. (2023), “An Empirical Study into the Effects of Organization Culture and Person-Job Fit on Post-Merger and Acquisition Resistance to Change in Select Commercial Banks”, *Review of Integrative Business and Economics Research*, Hong Kong, Vol. 12, Issue. 2, 28-57.
- [43] Tagiuri, R., Litwin, G. H., & Barnes, L. B. (1968). Organizational climate: Explorations of a concept.
- [44] Tahat, Y., Al mawali, H., & Alkurdi, A. (2017). The effect of governance attributes on corporate dividend payouts policy: evidence from Jordan. *International Journal of Corporate Governance*, 8(3/4), 313.
- [45] Toulson, P., & Smith, M. (1994). The relationship between organizational climate and employee perceptions of personnel management practices. *Public Personnel Management*, 23(3),
- [46] Urbach, N., Smolnik, S., & Riempp, G. (2009). “The state of research on information systems success: A review of existing multidimensional approaches”. *Business & Information Systems Engineering*, 1, 315–325
- [47] Veeramootoo, N., Nunkoo, R., & Dwivedi, Y. K. (2018), “What determines success of an e- government service? Validation of an integrative model of e-filing continuance usage.” *Government Information Quarterly*, 35(2), 161–174.
- [48] Wirawan (2008) *Budaya dan iklim organisasi : teori aplikasi dan penelitian*. Jakarta Salemba Empat
- [49] <https://lembarsaham.com/daftar-emiten/industrial/B11/barang-kimia?page=1>
- [50] <https://lembarsaham.com/daftar-emiten/industrial/B11/barang-kimia?page=2>
- [51] <https://www.chandra-asri.com/files/attachments/downloads/News%20Release/FY->

[2023/News%20Release%20-%20FY2023%20-%20Eng_Final.pdf](#)
 [52] <https://www.chandra-asri.com/about/cap-at-a-glance>

Appendix A: Scale Development

Variables	Code	Indicators
Organisational Climate	OC1	With SAP I know my work priorities clearly
	OC2	I am fully aware of my duties in relation to SAP
	OC3	Company makes good use of SAP users
	OC4	Employees in company are of exceptional quality
	OC5	My department uses SAP effectively with other departments
	OC6	Company workforce tends to help each other
	OC7	My team members support the use of SAP
SystemQuality	SyQ1	SAP system is easy to use
	SyQ2	SAP system meets my work needs
	SyQ3	SAP system has the necessary features for my work
	SyQ4	SAP system has the necessary functions for my work
	SyQ5	The look of SAP system can be easily customised with my personal approach
	SyQ6	SAP can be easily modified according to my needs
Information Quality	IQ1	Information generated by SAP system is in accordance with the needs of my work
	IQ2	Information I need from SAP system is always available
	IQ3	Information generated by SAP system in a ready-to-use form
	IQ4	Information from SAP system is easy to understand
	IQ5	Information from SAP system is easy to read
	IQ6	Information from compact SAP system
ServiceQuality	SeQ1	The staff in the IT department are well-groomed
	SeQ2	IT department performs the work according to the promised time
	SeQ3	IT department takes every user problem seriously
	SeQ4	IT department is reliable
	SeQ5	IT department is reliable
	SeQ6	IT department tells users exactly when service will be performed
	SeQ7	IT department provides fast service to users
	SeQ8	IT department always responds to respond to user requests
	SeQ9	Staff behaviour in IT department in stills trust in users
	SeQ10	I feel safe in interacting with IT department staff
	SeQ11	Staff in IT departments have the knowledge to do their jobs well
	SeQ12	IT department has convenient operating hours for all users
	SeQ13	IT department gives personal attention to users
	SeQ14	IT department puts the interests of users first
	SeQ15	IT department staff understand the specific needs of users
User Satisfaction	US1	I am satisfied with the function on SAP
	US2	SAP has simplified the work process
	US3	I received adequate support while using SAP for my work
	US4	In general, I am satisfied using SAP