

# ***Analysis Determinants of ERP System Implementation and its Impact on Work Effectiveness***

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## ***ABSTRACT***

*The implementation of an ERP (Enterprise Resources Planning) system is one of the key strategies that can be used for companies to increase their efficiency, effectiveness and competitiveness. Therefore, this study aims to determine the factors of ERP system implementation and its impact on Work Effectiveness. This research uses quantitative descriptive method by distributing questionnaires to respondents. The data were analyzed using validity tests, normality tests and multiple linear tests. The results showed that the variables of organizational characteristics, information quality and management support had a significant and positive effect on work implementation while the HR competency variable had no significant and positive effect. Based on this study, it is also known that the impact of ERP implementation on work effectiveness shows significant and positive results, because the implementation of the ERP system in the company can help the company in terms of data processing so as to create work effectiveness in the company.*

***Keywords:*** *Organizational Characteristics, HR Competencies, Information Quality, Management Support, ERP Implementation and Work Effectiveness.*

## ***INTRODUCTION***

*The increasing business competition today with the rapid*

*development of technology makes companies more demanding in improving the performance of their companies, especially in managing their business. One way to improve this performance is to make efficiency by integrating systems throughout the business process in order to achieve the objectives of the business process (Alvianto et al., 2022).*

*ERP (Enterprise Resource Planning) is a method to meet the need for integrated information. It is a system that combines all business processes and departments within a company through the use of single data entry (Roup & Purwanto, 2022). This integration is done through a database that can be accessed by all application programs. ERP systems operate online and in real time, ensuring that the information obtained is in accordance with actual conditions. This system must be able to manage large volumes of data, in addition, it must also have the characteristics of being open, robust, highly flexible, easy to configure and manage, and maintain a high level of data integrity throughout the organization.*

*PT Medison Jaya Raya is one of the companies that has used the Enterprise Resource Planning (ERP) Information System since 2019 as a tool for data processing. Information technology applied at PT Medison Jaya Raya by integrating all lines of departments in the company by implementing an ERP system aims to increase productivity and help achieve quality, time standards and satisfaction for both consumers and employees. To prepare employees for new challenges and ensure the benefits of technology can be realized, companies also need to understand system implementation from a user perspective. This allows employees to learn and master the use of technology well*

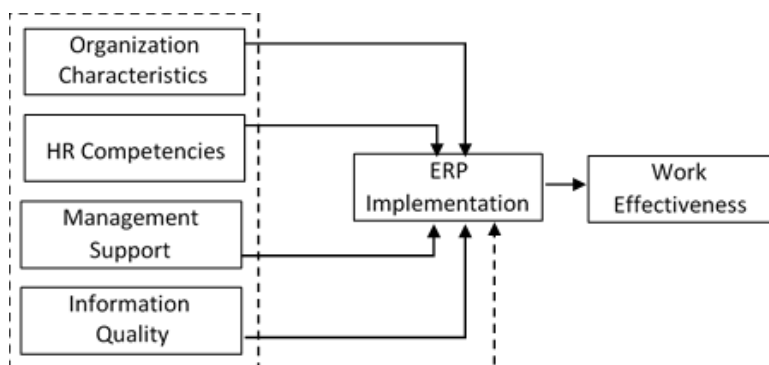
*(Nur Aini Isnalita, 2018).*

*Based on the results of researchers' observations with PT Medison Jaya Raya employees, there are problems in ERP implementation, namely the problem of insufficient training for end users which hinders ERP acceptance so that users who are less familiar with new technology or do not master how to use the system properly can reduce the effectiveness of ERP implementation, then problems in adaptive performance caused by a lack of communication between employees, this situation results in the inability to update data in the field, thus causing an imbalance of actual data in ERP use. This problem also arises due to a lack of awareness in communication between fellow workers so that it affects employee performance in using Information Systems which will also have an impact on organizational or company performance, although estimates of failure in ERP implementation remain and are relatively high at 50%-60% (Andriasari et al., 2023). Therefore, the need factor to implement the use of ERP in a company needs to be known so that there is no failure due to complexity during ERP implementation (Dewi & Asriani, 2019), so that it can increase the success rate in ERP implementation in order to build an advantage in competing to remain competitive (Marsudi & Pambudi, 2021).*

*Research conducted (Purnama Dewi & Luh Putu Asriani, 2019) shows that Information Quality, System Quality and User Satisfaction have a positive effect on the successful use of ERP systems, research conducted (Suryantoro, 2020) on the Effect of Information System Quality, Information Quality, User Satisfaction, and Human Resource Competence on the Use of ERP Systems has a positive effect on the successful use of ERP systems, research conducted*

*(Naibaho & Fatimah, 2021) states that human resource or user competence has no effect on the use of information systems, while according to (Akram et al., 2017) HR competence affects the implementation of the use of ERP systems, research conducted (Lawalata, 2019) on the Effect of Organizational characteristics on the Successful Implementation of ERP Systems has a positive effect on the successful use of ERP systems, research conducted (Imamuddin & Putri, 2021) shows that the most important support factor in ERP implementation is management support, and research conducted (Roup & Purwanto, 2022) with ERP implementation shows that company performance has improved, however, from some of these studies there are differences in research results related to HR competence on the use of information systems and have not seen whether organizational characteristics, HR competence and information quality with the addition of management support variables together as independent variables can have a positive effect on ERP Implementation in companies and the impact of ERP implementation on work effectiveness as the dependent variable.*

## **RESEARCH FRAMEWORK**



Description :  
\_\_\_\_\_ : Partial Test  
----- : Simultaneous Test

**Figure 1. Research Framework**

## **HYPOTHESES**

*H1 : It is suspected that organizational characteristics have a positive and significant effect on ERP system implementation.*

*H2 : It is suspected that HR competencies have a positive and significant effect on ERP implementation.*

*H3 : It is suspected that management support has a positive and significant effect on ERP system implementation*

*H4 : It is suspected that the quality of information required has a positive and significant effect on ERP system implementation.*

*H5 : It is suspected that organizational characteristics, HR competencies, management support and information quality together have a positive and significant effect on ERP implementation.*

*H6 : It is suspected that organizational characteristics, HR competencies, management support and information quality simultaneously on ERP Implementation have a positive and significant effect on works effectiveness.*

## **RESEARCH METHODS**

*The method that researchers use is to use a quantitative approach, and the data collection method used in this research is to use a questionnaire tool by going directly to get a sample of the existing population so as to speed up the research process carried out in February 2024. The*

questionnaire is measured by Likert model questions which include “Strongly Disagree rated 1 (one), Disagree rated 2 (two), Neutral rated 3 (three), Agree rated 4 (four), and Strongly Agree rated 5” (five). Making questionnaires is done through Google Form to facilitate the distribution of questionnaires. The object of this research is employees at PT Medison Jaya Raya, with the sampling technique in this study being a saturated sample, with a total of 34 respondents. Data analysis techniques using SPSS 25 software with validity, reliability and multiple regression analysis (T test, F test, and coefficient of determination).

## **RESULTS & DISCUSSION**

### **Respondent Profile**

**Table 1.** Respondent Profile

	<b>Description</b>	<b>Percentage</b>
Gender	Male	56%
	Female	44%
Age	20-30 Years	21%
	31-40 Years	38%
	41-50 Years	26%
	51-60 Years	15%
Education	SMA/SMK	23%
	D1/D2/D3/D4	18%
	S1	50%
	S2	9%
Length of work	1 - <2 Years	9%
	2 - <5 Years	21%
	5 - <10 Years	29%
	10 - <15 Years	23%
	> 15 Years	18%

*Source: Data Analyzed, 2024*

### **Validity Test**

*The basis for making validity test decisions is by comparing the calculated r value and r table, where if the calculated r value > r table, it is declared valid and if the calculated r*

value < r table, it is declared invalid.

**Table 2.** Comparison table of r value and r table

Indicator	r count	r table	Indicator	r count	r table
KO1	0,416		KI1	0,587	
KO2	0,342		KI2	0,729	
KO3	0,428		KI3	0,504	
KO4	0,409		KI4	0,478	
KO5	0,591		KI5	0,581	
KS1	0,574		KI6	0,520	
KS2	0,452		IE1	0,628	
KS3	0,436		IE2	0,566	
KS4	0,490	0,339	IE3	0,688	0,339
KS5	0,382		IE4	0,556	
KS6	0,503		IE5	0,534	
KS7	0,556		EK1	0,589	
DM1	0,464		EK2	0,565	
DM2	0,664		EK3	0,673	
DM3	0,638		EK4	0,482	
DM4	0,527		EK5	0,492	
DM5	0,675		EK6	0,488	

Source: Data Analyzed, 2024

### **Cronbach Alpha Reliability Test**

The basis for making decisions on the Cronbach Alpha Reliability Test is if the Alpha value > 0.60 then it can be declared reliable.

**Table 3.** Cronbach Alpha

Variables	Cronbach Alpha Value	Status
Organization Characteristics	0,718	
HR Competencies	0,770	
Management Support	0,846	Reliable
Information Quality	0,891	
ERP Implementation	0,699	
Work Effectiveness	0,821	

Source: Data Analyzed, 2024

### **Multiple Linear Regression Analysis**

#### **T test**

The basis for decision making in the *t* test is to compare between *t*count and *t*table, where if *t*count is greater than *t*table then there is an influence on the independent variable on the dependent variable, while if *t*count is smaller than *t*table then there is no influence on the independent variable on the dependent variable.

**Table 4.** Comparison of T count and T table

<b>Variables</b>	<b>Tcount</b>	<b>Ttable</b>
Organization Characteristics → ERP Implementation	3,034	2,045
HR Competencies → ERP Implementation	0,342	2,045
Management Support → ERP Implementation	2,369	2,045
Information Quality → ERP Implementation	4,374	2,045
ERP Implementation → Work Effectiveness	7,702	2,027

Source: Data Analyzed, 2024

## F Test & Coefficient of Determination

The basis for decision making in the *F* test is if the Sig value is smaller than 0.05, *H*<sub>0</sub> is rejected and *H*<sub>a</sub> is accepted, which means that simultaneously the independent variable has a significant effect on the dependent variable, but *H*<sub>a</sub> is rejected and *H*<sub>0</sub> is accepted if the Sig value is greater than 0.05, which indicates that simultaneously the independent variable has no significant effect on the dependent variable.

**Table 5.** Output SPSS Anova & Model Summary

<b>Predictors</b>	<b>Dependent Variables</b>	<b>Anova F</b>	<b>Sig.</b>	<b>R Square</b>
Organization Characteristics HR Competencies Management Support Information Quality	ERP Implementation	24,330	0,000 <sup>b</sup>	0,770
ERP Implementation	Work Effectiveness	59,328	0,000 <sup>b</sup>	0,650

Source: Data Analyzed, 2024



## **DISCUSSION**

### **1. The effect of the Organizational Characteristics variable on ERP Implementation**

*The results of this study indicate that the Organizational Characteristics variable has a significant and positive effect on ERP system implementation, this can be seen from the tcount value which is greater than the ttable value, namely  $3.034 > 2.045$ , it can be concluded that there is a significant and positive influence between the organizational characteristics variable and the ERP system implementation variable. This can be caused by organizational characteristics consisting of resources, organizational climate or culture and organizational structure as part of the organization which all need to be integrated to support ERP implementation in the company.*

*As research has been conducted (Capri & Rahayu, 2022) they say that organizational characteristics are the main determinant of the extent of ERP Implementation adoption, because by understanding the benefits of implementing an ERP system to increase organizational efficiency and effectiveness, organizational characteristics can influence the company's initial decision to adopt an ERP system implementation in the company. The implementation of ERP systems in companies also requires the establishment of new rules and transformation of corporate culture in order to create an atmosphere conducive to all components in the organization, therefore organizational characteristics are very identical to the success of ERP systems in companies (Lawalata, 2019).*

### **2. The effect of the HR Competency variable on ERP system implementation**

*The results of this study indicate that the HR Competency variable does not have a significant and positive effect on ERP system implementation, this can be seen from the tcount value which is smaller than the ttable value, namely  $0.342 < 2.045$ , it can be concluded that there is no significant and positive influence between the HR competency variable on the ERP system implementation variable*

*HR or user competence is something that must be considered by companies in implementing ERP systems because HR competence contributes to achieving company goals/targets. However, even though HR competence is an important indicator, directly or partially HR competence has no effect on ERP implementation, it can be caused by several factors such as the educational background of respondents, the majority of whom have a higher education (S1) as much as 50% and the majority of respondents as much as 29% have a working period of 5-10 years and the lack of training conducted by the company which results in them not following existing regulations and relying more on individual perceptions. This is in line with research conducted previously that HR competence partially has no effect on the implementation of ERP systems in companies (Naibaho & Fatimah, 2021). Meanwhile, according to (Akram et al., 2017) HR competence affects the implementation of ERP system usage. Although the results of this study and other studies have differences, for organizations to have competent HR is very important, because in the HR competency indicators there is self-development, professionalism, expertise and mastery of technology.*

*HR competence still needs to be examined as one of the*

*determining factors in the successful implementation of the ERP system, because it requires preparation and explanation of the concept of implementing the ERP system so that by having competent human resources, they will be able to understand and facilitate the use of the ERP system.*

### **3. The effect of the Management Support variable on ERP system Implementation**

*The results of this study indicate that the Management Support variable has a significant and positive effect on ERP system implementation, this can be seen from the tcount value which is greater than the ttable value, namely  $2.369 > 2.045$ , it can be concluded that there is a significant and positive influence between the organizational characteristics variable on the ERP system implementation variable.*

*Management support in implementing an ERP system is very important because management support can affect the success rate of ERP system implementation in the company. The results of this study are consistent with research conducted by (Cahyadi et al., 2020) and (Aristo, 2017) that Management Support has a significant effect on the successful implementation of ERP systems in companies, this proves that the higher the Management Support, the more it can affect the implementation of ERP systems. This is because the indicators of management support have two main aspects, namely leadership that is committed to the implementation of the ERP system and the provision of the necessary resources including people, funding, and equipment.*

*Management support is needed throughout the ERP system implementation, because with the ERP system*

implementation there will be a new system that must be communicated to all elements in the organization. The determination of this policy is determined by top management to build a new system or culture in the company.

#### **4. The effect of the Information Quality variable on ERP system implementation**

The results of this study indicate that the Information Quality variable has a significant and positive effect on ERP system implementation, this can be seen from the  $t$ count value which is greater than the  $t$ table value, namely  $4.374 > 2.045$ , it can be concluded that there is a significant and positive influence between the Information Quality variable on the ERP system implementation variable. The results of this study are also consistent with research that has been conducted (Duwita Sigalingging & Indah Permatasari, 2021) that information quality has a significant effect on ERP system implementation, also in research (Dessyana & Yolanda, 2022) showing the same results that information quality affects ERP system implementation.

The consistency of this research with previous research can also be caused if users of the results of the ERP system implementation find it easy to use the system and do not require a lot of effort in using it so that these users can have plenty of time to do other things. Information quality is also the quality of the output, namely in the form of information generated from the ERP system implementation. Users of this ERP system will certainly expect that by using the system, the information needed will be obtained, where the information is relevant, complete and easy to understand. Data accuracy in ERP implementation is the key to operational success and long-term business strategy for the

company as the results of this study show that the data / information quality variable gets the highest value compared to other variables because without accurate data, the full benefits of the ERP implementation system cannot be realized, so it can result in various problems that can harm the company.

### **5. The effect of Organizational Characteristics, HR Competencies, Management Support and Information Quality variables on ERP system Implementation**

Based on the results of the multiple regression analysis that has been carried out, namely by conducting the *F* test testing method, it is known that the significance value for the effect of the Organizational Characteristics variable, the HR Competency variable, the Management Support variable and the Information Quality variable simultaneously on ERP Implementation is 0.000 which is smaller than 0.005, so it can be concluded that simultaneously there is a significant influence between the Organizational Characteristics variable, the HR Competency variable, the Management Support variable and the Information Quality variable on ERP Implementation. These results are also reinforced by the knowledge that the calculated *F* value of 24.330 is greater than the *F* table of 2.69, which means that simultaneously or together there is a significant influence on the four variables tested.

In the *R*<sup>2</sup> Coefficient of Determination Test that the researchers conducted showed a result of 0.770 which can be interpreted that the effect of the Organizational Characteristics variable, the HR Competency variable, the Management Support variable and the Information

Quality Variable simultaneously on ERP Implementation was 77% (seventy-seven percent) while the remaining 33% was influenced by other factors or variables not included in this study.

## **6. The effect of the ERP system implementation variable on work effectiveness**

The results of the test analysis in this study indicate that the ERP system implementation variable has a significant and positive effect on work effectiveness, this can be seen from the  $t_{count}$  value of 7.702 which is greater than the  $t_{table}$  value of 2.027.

In the  $F$  test that researchers conducted, the ERP Implementation variable also had a significant effect on work effectiveness, this is indicated by the significance value obtained of 0.000 less than 0.05, this result is also reinforced by comparing the  $F_{count}$  and  $F_{table}$ , where the  $F_{count}$  result is greater than the  $F_{table}$  value of 2.29. Thus it can be concluded that the implementation of the ERP system on work effectiveness has a positive and significant effect.

The  $R^2$  Coefficient of Determination test conducted shows a result of 0.650, this can be interpreted that the contribution or influence of the ERP Implementation Variable on work Effectiveness is 65% while the remaining 35% is the contribution of other variables not included in this study.

The implementation of the ERP system carried out by the company can help the company in processing input data, be it production, financial, or stock data, this is in line with research (Cynthia Irawan & Novianus Palit, 2022), that with the implementation of the ERP system in the company, it can help the company in terms of work effectiveness so

that it can also improve company performance (Nazara et al., 2022).

## **CONCLUSION & SUGGESTION**

Organizational characteristics, management support, information quality, are variables that are inseparable from ERP implementation in the company, as a result of this study these three variables have a positive and significant effect on ERP implementation, while the HR competency variable has no significant effect, this can be caused by the characteristics of respondents who are mostly highly educated (S1) and have worked for more than 5 years. However, the HR competency factor is also very important because in HR competence there is self-development, professionalism, expertise as well as mastery of technology that can help facilitate the implementation of the ERP system in the company.

The impact of ERP system implementation on performance effectiveness can be seen from the research results which show significant and positive results of 65% (sixty-five percent), because with the implementation of the ERP system in the company, it can assist the company in processing data, be it financial data, production, or stock of goods so as to create effective performance in the company.

For future researchers, additional research can be carried out regarding the application of the ERP Implementation system as a mediator variable on work effectiveness to see direct and indirect effects and conduct research in various sectors to gain a deeper understanding of more specific challenges and benefits.

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# CONFERENCE CLOSING REMARKS

The Ibn Khaldun International Conference on Applied and Social Sciences (IICASS2022) is an annual event organized by Bogor Ibn Khaldun University. Its primary objective is to provide a platform for scholars, intellectuals, and professionals to exchange ideas and contribute to achieving the SDGs Targets. This year's conference, with the theme "Challenges and Opportunities in Achieving the SDGs Targets for Meeting the Basic Needs of the People," featured the Mayor of Bogor as the Keynote Speaker and six Guest Speakers from five different countries.

IICASS-2022 collaborated with several institutions as co-hosts, both domestically and abroad, including Ibn Haldun University Turkey, the Institute of Objectives Study India, Universiti Kebangsaan Malaysia, National Human Rights Commission of The Gambia, National Research and Innovation Agency -BRIN, and Djuanda University, among others.

The conference discussed various scientific fields that support sustainable development, including social environmental sciences, environmental economics, green business & entrepreneurship, system engineering, health and sanitation, engineering and science, law and regulation, education for sustainable development, as well as Islamic values and sustainability. The organizers hope that the conference will produce insightful ideas and solutions for the benefit of local, regional, and international communities.

The organizers expressed their gratitude to all those who have played a part in the success of IICASS 2022.