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The Application of Human Organization Technology Model to Evaluate ERP Information Systems in General Contractor, Supplier and Trade National Companies

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Abstract

The goal of this study is to assess the system and identify the key performance indicators for the enterprise resource planning (ERP) information system. Quantitative methodologies were employed in the conduct of this study. The SmartPLS data processing program will process the collected data through questionnaire-based surveys and analysis of the collected data. Researchers also spoke with a number of respondents in unstructured interviews; the results of these interviews served as some supporting information on the business. Saturated sampling combined with a nonprobability sampling strategy was employed by researchers. Thus, 100 respondents, or samples, were used in this study. To create the framework for the research model that would be utilized, research model creation was done. The HOT Fit model was employed in this study. There are four hypotheses that cannot be accepted, according to the study and discussion outcomes. System usage, user satisfaction, structure, and environment are the aspects that affect net benefit; system quality, information quality, and service quality are the factors that influence system use, user satisfaction, and structure. In this study, the variable relationship with the highest influence is IQ→ US, with a path coefficient value of 0.5, and the variable relationship with the lowest value is SU→ NB, with a route coefficient value of 0.1. Thirteen of the hypotheses are accepted, whereas two have little bearing.

Keyword: ERP, Enterprise Resource Planning System, HOT FIT Model, System Evaluation

1. INTRODUCTION

In modern times, where everything uses technology, the use of technology (computers) continues to increase rapidly because it plays a very important role for humans in carrying out their daily work. And of course, the presence of computers is a very useful tool for companies conducting business in this modern era, because the presence of computers can increase the effectiveness of data processing in the company. ERP (Enterprise Resource Planning) is a system used to integrate all company resources. This system makes it possible for every part of the company to be connected to the same system, which can facilitate planning and management between departments. ERP has many functions, including integration between departments, increasing the accuracy of business processes, and making it easier to supervise and monitor the company. ERP itself is growing very rapidly in the corporate world, both in Asia and throughout the world. According to research conducted by Technavio, it is projected that ERP globally in 2024 period will increase by 19 trillion dollars. In 2020, ERP increased to 6%, which is also projected to experience an increase in CAGR (combined annual growth rate) of up to 9%, and the largest contribution came from North America at 36% and has a positive influence. And in 2021, Grand View Research will conduct research regarding which companies use ERP a lot [1].

The largest company sector that uses an ERP system is the manufacturing and services sector. The majority of large firms operate their operations with ERP software to enhance employee productivity and product quality, which can eventually create additional value and maximize revenues for all parties involved. The Enterprise Resource Planning System, or ERP, is an information system designed to help medium- to large-sized businesses automate and integrate business operations pertaining to their production, distribution,

and operating elements [2]. In addition to businesses' growing interest in enterprise resource planning (ERP), there are a number of implementation errors that can occur. Numerous notable instances of ERP implementation failure exist, such as the Hershey Company, which lost 29% of its market share due to its inability to implement ERP. Additionally, the failure of Fox-Meyer Drugs to apply ERP led to the company's downfall. In the meanwhile, one of the reasons ERP implementations fail is the need for organizational culture modifications, particularly those pertaining to work practices [3]. A few instances of current modifications include the clearance procedure that switched from a hardcopy model to a display model, requiring managers to have some familiarity with technology. For instance, because the data this system provides must be current, workers must constantly update data. This is another modification. It turns out that organizational culture may be changed by all partners over time, improving user readiness for the new technology [4].

The ERP system was implemented in the company with the hope that in the first year, the work process in the company would become faster, more practical, and more efficient. And later in the third year, it is hoped that the company's work processes will be fully digitalized with an ERP system implemented within the company [5]. During its implementation from early 2021 until now, it was conveyed by the manager. After one year of implementing the system, the response received by the manager actually showed progress that was not in accordance with the main objective of implementing the system [6]. The manager stated that after one year, employee performance was visible. The same, or even slower, employee work motivation decreases, as can be seen from employee absenteeism and the tasks given to employees. Because the advancement is not in accordance with the company's aims, it can be concluded that the ERP system installation has not been very effective. Consequently, the manager asked for an assessment of the ERP system in the organization to determine why the progress that was made after a year of system implementation did not meet the company's expectations. The HOT-FIT method, which combines the D&M IS Success Model with IT-Organization FIT, will be used by researchers to maximize evaluation results [7]. The three main factors are human, which includes system use and user satisfaction, organization, which includes structure (organizational structure), and environment (organizational environment). In addition, technology is backed by essential factors that determine the effectiveness of information systems. These factors include system quality, information quality, and service quality, all of which affect net benefit [8]. The net benefit of a system is strongly correlated with the positive and fairly strong interaction that exists between people, organizations, and technology. This relationship is unidirectional. Since it was discovered in 2008, this model has been used by other researchers to analyze the extent to which the system has been implemented successfully [9].

So based on the discussion and problems that have been explained, it can be concluded that the purpose of an ERP system is to facilitate performance and work processes within the company so that they are easier, more efficient, and more practical; therefore, this research is aimed at identifying what factors are involved. influences system performance related to aspects of humans, the company, and the system itself. In the 1990s, management (MIT90s) acknowledged an established framework, the IT-Organization FIT Model. According to this concept, an organization's ability to successfully use information technology is dependent on a number of interrelated elements, including the external environment, organizational structure, business strategy, management procedures, technology, roles, and talents [10]. It is anticipated that technology will impact management, which in turn will impact the performance of the business. Previous study in 2022 employed a framework model that integrates the IT-Organizational FIT and D&M IS Success Model principles. The design that was created is known as the Human-Organization-Technology (HOT) FIT Model [11].

System utilization and user satisfaction are the two dimensions that the human component of the HOT FIT model utilizes to evaluate how well information technology is implemented. The frequency and scope of information system functions and inquiries are correlated with system use. In addition, system use is influenced by who uses it, their training, their views, their expectations, and whether they embrace or reject the system. How frequently or how long users use the system is typically used to gauge how frequently they use it, which leads to user dependence on the system. Expectations relate to enhancing service delivery through the use of information systems or technology, whereas knowledge relates to users' understanding of these tools. One indicator of an information system's success is user happiness. The total assessment of the user's experience and the possible outcomes of using an information system is known as user satisfaction. The benefits that users can feel or experience when using information systems and their attitudes toward information technology attitudes that are impacted by human characteristics are related to user happiness [12]. Information systems can be evaluated by organizations based on their organizational environment and structure. Culture, politics, hierarchy, autonomy, planning and control systems, strategy, management, and communication are the components that make up organizational structure. The funding, politics, governance, kind of people served, rivalry, ties between organizations, and communication make up the organizational environment. In addition, agencies, top management support, and leadership can all be used to gauge organizational variables [13].

Technology evaluates the system based on the information system's quality, which is connected to the quality of the system, the information, and the services. System quality refers to the hardware and software performance of the system as a whole, enabling it to give users information. This system's simplicity of use, usefulness, dependability, flexibility, data quality, portability, integration, and information system importance

can all be used to gauge its quality. The caliber of the information output that the information system produces is known as information quality. Compendiousness, timeliness, correctness, completeness, and relevance are metrics that can be used to assess the quality of information. The level of service that users receive from the information system is known as service quality [14]. Reliability, assurance, responsiveness, tangible proof, empathy, and follow-up care are all indicators of high-quality services. A thorough review of a core component approach that is, people, organization, and technology as well as the compatibility of these three elements for the effective deployment of an information system may be explained through the use of the HOT FIT model. Systems can help an industry as a whole, a single user, a group of users, or an organization. The balance of both good and negative effects on users managers, IT personnel, and system developers is captured by net benefit. The influence of information on receiver behavior is known as individual impact. This has to do with how successfully users accomplish their jobs as well as modifications to their work activities and higher productivity. Thus, job effects, efficiency, effectiveness, decision quality, and mistake reduction can all be used to evaluate an individual's net advantages [15].

When making decisions, assessing something's value, quality, and importance entails a systematic, continuous procedure with a wide range of criteria and factors. Research becomes an essential component of this process, requiring the gathering, analysis, and presentation of pertinent facts pertaining to the assessment item in order to reach well-informed conclusions about it. To determine its total value and impact, this data is next thoroughly evaluated and compared to predetermined assessment markers. Apart from the evaluation process itself, it's critical to understand that the subject of the evaluation is frequently not a single unit but rather a component of a larger system. A complicated structure made up of two or more connected components that cooperate to accomplish particular goals is referred to as a system. These systems are frequently broken down into smaller subsystems, each of which contributes to the general operation and goal of the bigger entity, in order to effectively support the goals of the larger system. As a result, it can be said that a system is basically made up of several interrelated components working together to achieve a specific goal. A thorough analysis of the many factors that define a system's traits is necessary to comprehend it. This entails dissecting its components, defining its limits, taking into account the external environment it interacts with, examining its data processing techniques, analyzing input and output systems, and having a clear grasp of its overall goals and objectives. A system is both flexible and dynamic in that it can adjust to different goals for each situation that arises in its operational domain. This flexibility captures the core of a system, which is the complex integration of various parts and operations. Systems provide a comprehensive foundation for comprehending and managing complex entities in a wide range of domains and applications because they are diverse and versatile, allowing for classification and analysis from multiple perspectives [14].

In general, information is a compilation of facts that have been organized so as to provide value to a wide number of people. In the corporate world, an information system is a well-organized group of workers, tools, software, networks of communication, and data sources that are used to collect, process, and distribute information. The interrelated components that make up these information systems work together to gather, process, store, and display data in order to enable organizational decision-making, coordination, regulation, analysis, and visualization. Together, these parts manage data, convert it into useful information, and use that knowledge to accomplish organizational goals. Information systems operate in three separate cycles: input, processing, and output [16]. These cycles are essential to the effective operation of these systems.

2. MATERIALS AND METHOD

This research was conducted using quantitative methods. For this research, it is necessary to collect and analyze data using quantitative methods. One of these methods is data collection through surveys using questionnaires, and the SmartPLS data processing application will process the data analysis. Researchers also conducted several unstructured interviews with several respondents; these interviews were used as some supporting data related to the company. Researchers used sampling using a nonprobability sampling method with a saturated sampling technique.

Thus, there were 100 responders, or samples, in this study. To create the research model framework that will be utilized in the study, research model development was done. The HOT FIT model is the one that was employed in this study. SmartPLS was used in this study's inferential statistical analysis. At this point, two analyses the measurement model analysis and the structural model analysis must be completed. Via the use of convergent, discriminant, internal consistency, and reliability indicators, the measurement model is used to assess the validity and dependability of the outer model. In the meantime, tests of the path coefficient (β), coefficient of determination (R2), t-test, effect size (f2), predictive relevance (Q2), and relative impact (q2) were conducted using the structural model. After that, the researcher talked about the questionnaire's results in the field and used a number of prior studies to convert the model analysis's findings into quantitative figures. The researcher didn't analyze the study's findings until after that.

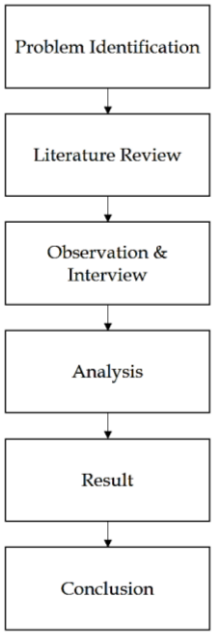

Figure 1. Research Flowchart

3. RESULTS AND DISCUSSION

The measurement model analysis results from the previous sub-chapter indicate that the suggested research model has good validity and reliability values. All indicators have outer loading values greater than 0.7, and Cronbach's alpha and composite reliability are greater than 0.5, demonstrating this. Aside from that, every indicator employed in this study has an AVE value greater than 0.5, including cross-loading and Fornell Larcker's, which have standards based on current regulations. Because the outer model analysis results on the model used are good, these results suggest that inner model measurements or structural model measurements can be performed on the model used in this research. The structural model analysis's t-test results indicate that the hypothesis (H1) is rejected. According to the computation of f2 and q2, this indicates that SQ has no effect on the SU variable and that the SQ → SU path has a significant influence and a moderate influence value. These findings support earlier research that found no relationship between system quality and system utilization because of research object variables. The structural model analysis's t-test results indicate that the hypothesis (H2) is accepted. According to the computation of f2 and q2, this indicates that SQ has an influence on the US variable and that the SQ → US path has a considerable influence. The influence value is medium or minor. These results show conformity with previous research, which states that system quality has an influence on the level of user or human satisfaction.

The structural model analysis's t-test results indicate that the hypothesis (H3) is accepted. Based on the computation of f2 and q2, this indicates that SQ has an affect on STR and that SQ→STR has a major influence with medium and small influences. This is consistent with other studies that indicates a positive relationship between organizational structure and system quality. The structural model analysis's t-test results indicate that the hypothesis (H4) is accepted. This indicates that IQ affects the SU variable, and based on the f2 and q2 calculations, the IQ → SU path has a big influence and a minor influence value. These findings support earlier studies that found a relationship between system utilization and information quality. The fifth hypothesis is accepted. According to f2 and q2 computations, this indicates that IQ affects the US variable and that the IQ→US path has a considerable influence with high and medium influence values. These findings are consistent with earlier studies that found a relationship between user satisfaction and information quality. The structural model analysis's t-test results indicate that the hypothesis (H6) is accepted. This means that IQ has an influence on STR, although the IQ→STR path has a significant influence, but the influence is small based on the calculation of f2 and q2. These results show conformity with other similar research, which states that information quality and organizational structure have a positive influence between the two.

Based on the structural model analysis, the t-test results indicate that the hypothesis (H7) is not supported. According to the computation of f2 and q2, this indicates that SEQ has no effect on SU, but the SEQ → SU path has a large influence that is spread out over a medium and small amount. The t-test statistically does not match the regulatory value standards if it is not accepted but has a significant value. These findings are consistent with other studies that disproved the hypothesis that system use and service quality are related. The theoretical framework (H8) is supported by the findings of the t-test conducted on the structural model analysis. From the computation of f2 and q2, it can be inferred that SEQ has an effect on the US variable and

that the SEQ→US path has a substantial and a minor influence value. Our findings support earlier studies that found a relationship between service quality and user happiness. The theoretical framework (H9) is supported by the findings of the t-test conducted on the structural model analysis. Based on the computation of f2 and q2, it can be inferred that SEQ has an impact on the STR variable and that the SEQ→STR path has a significant and a minor impact value. These findings contradict a number of earlier research that found no association between organizational structure and service quality. Based on the structural model analysis, the t-test results indicate that hypothesis (H10) is legitimate. Thus, based on the computation of f2 and q2, it can be concluded that SU influences the NB variable and that the SU→NB path has a substantial and a minor effect value. The present findings are consistent with other studies that found a relationship between system use and net benefit, with higher system utilization values corresponding to larger influence values on net benefit.

The structural model analysis's t-test results indicate that the hypothesis (H11) is accepted. According to the computation of f2 and q2, this indicates that the US has an influence on the NB variable and that the US→NB path has a considerable influence. The influence value is medium or minor. These findings are consistent with earlier research that found that user happiness affects net benefit and that a larger influence value on net benefit corresponds to a higher system utilization value. The structural model analysis's t-test results indicate that the hypothesis (H12) is rejected. According to the computation of f2 and q2, this indicates that STR has no effect on the NB variable and that the STR → NB path has no substantial influence. The influence value is minor and medium. These findings support earlier studies that discovered an association between organizational structure and net benefits. According to the structural model analysis's t-test results, hypothesis (H13) is not accepted. This indicates that LO has no effect on the NB variable, and based on the f2 and q2 calculations, the LO → NB path has a significant influence and a modest influence value. The association between the organizational environment and net benefits was disproved in earlier study, and these findings are consistent with that. Eight of the thirteen theories that are currently in existence have been accepted, while the remaining four have been rejected. It is intended that with the current findings, the research findings can serve as a guide or annotation for next studies or other organizations that wish to use the ERP system. The four hypotheses that this research did not accept can be reaffirmed by other organizations that wish to adopt ERP. in particular, the connections between environment and net benefit, structure and net benefit, and system quality and system utilization.

4. CONCLUSION

Based on the discussion and analysis results, we can say that out of the 13 hypotheses that the researcher put forward to be tested, four are not accepted. These are H1, which says that system quality affects system use; H7, which says that service quality affects system use; H12, which says that structure affects net benefit; and finally, H13, which says that environment affects net benefit. System usage, user system, structure, and environment are the elements that affect net benefit, according to the data processing results of this study. On the other hand, system quality, information quality, and service quality are the factors that influence system use, user satisfaction, and structure. With a path coefficient value of 0.5, IQ→ US is the variable association that has the most influence in this study, while SU→ NB has the smallest influence with a value of 0.1. Out of the 13 accepted hypotheses, system use → net benefit is one of the two that has no discernible impact. Net advantage → satisfaction of users. Based on a number of these discoveries, the researcher also believes that this study has benefited and contributed to a number of things, including: It is believed that this research can serve as a theoretical alternative reference for future researches, as it theoretically adds references to the use of the HOT-FIT model. or other parties in comprehending how the effectiveness of a system's implementation is measured. It is intended that by doing this research, linked businesses would be able to utilize it as a guide to enhance their ERP systems and make them more fulfilling and helpful. Based on the results of the research that has been carried out, the researcher will present several suggestions for related agencies and parties who intend to conduct further research (especially on similar topics), namely: For future researchers, the research model used can be further developed, such as by adding pathways between variables and adding several variables that allow the variables and paths between these variables to have a big influence on the value of measuring the success of a system. Researchers suggest trying to research other ERP systems such as Oracle, Hasmhmicro, or Odoo ERP, and can also try processing the results of data analysis using other statistical calculation tools such as SPSS.

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