

Analysis of ERP Implementation in the Hospital Financial Reporting Process

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A B S T R A C T

This study aims to evaluate the effects of Enterprise Resource Planning (ERP) deployment on the financial reporting process at Hospital XYZ, by examining the user's perceptions of the financial reporting process. In order to collect primary data for this study, questionnaires and interviews were used. Triangulating data from questionnaires and interviews, then analyzing the results and drawing conclusions, are some of the data analysis methods employed. The results of this study indicate that accounting and finance staff members believed that ERP had a favorable effect on the increasing quality of financial reports. Implementing ERP also improves the efficiency of the accounting and finance team. Staff members in accounting and finance are becoming more coordinated. The degree of staff satisfaction has also increased. Information integration also expanded as a result of the ERP Implementation. However, because the ERP at Hospital XYZ is still under development, there are still issues that Hospital XYZ must deal with. Difficulties faced include, BPJS rates are still manually entered, there is a risk that they may be entered incorrectly and must be verified by superiors. Additional trainings and a thorough handbook are required as some staff still need time to adapt. There are also bugs that keep recurring, the ERP provider should be contacted and asked to conduct an evaluation to identify potential fixes to solve it.

Keywords: ERP, Accounting Information System, Employee Perception, Hospital, Financial Reporting

INTRODUCTION

Recent rapid technological developments have led to the changes in organizational operational activities with the help of information technology. An integrated system or what is called Enterprise Resource Planning (ERP) is needed by organizations to make their operational activities more efficient and help leaders make decisions. The term ERP was introduced by Gartner in the early 1990s which defined that ERP is an integrated module for accounting, finance, sales and distribution, human resources, and other business functions that connect companies with customers and suppliers (Mabert et al, 2003).

The need for ERP is currently widespread for both large and complex companies, as well as small and medium-sized companies. The integration offered by ERP is very helpful for all parts of the company, especially Accounting. Scapens & Jazeyi (2003) argue that the characteristics of ERP such as integration, standardization, routine, and centralization have even changed the role of accounting, namely eliminating routine work that is usually done, the emergence of managers with accounting knowledge, the availability of more progressive or forward-looking information, and the increasingly broad role of accounting. It should be noted that ERP is not only a software package but can also affect the culture, habits, and ways of working of employees in a company (Grubisic, 2014). This is reinforced by research by Abbasi et al (2014), Sánchez-Rodríguez & Spraakman (2012), and Suhaimi et al (2016) which say that the characteristics of ERP, namely standardization, also have a positive impact because they can increase the level of standards and quality of reports, and accountants can be more efficient and do more other analysis because routine manual work and a lot of time is reduced. The convenience offered by ERP should help company operations in various circumstances, especially with the current changes in the industrial environment. According to Colmenares (2009), ERP can improve management's decision-making process, enterprise integration, and improve employee supervision. According to Grabski et al (2009), since the introduction of the ERP system, it has been widely used by companies in running their business.

In addition to the benefits provided, ERP also has several disadvantages which according to Romney et al (2021) are the costs of developing hardware or software such as computers, servers, buildings for databases, and software for ERP applications are not cheap; the time required for ERP implementation is also not short; operations that are usually carried out will be different due to the use of ERP; the larger the company and the business processes of each department will increase the complexity of ERP which will integrate various systems that were previously separate; resistance, there are parties who disagree and can hinder ERP implementation in the company.

The ways in which these disadvantages can be avoided according to Beheshti et al (2014), there are twelve factors that can be followed so that the ERP that the organization implements is successful and not detrimental, namely central management support, project management, communication between fields, user education and training, clear goals and achievements, changes in management plans, Business Process Reengineering (BPR), support from vendors, use of consultants, minimal ERP customization, user involvement in evaluation, modification, and implementation, and corporate culture. According to Heinzelmann (2017), frequent and consistent ERP training is essential to avoid misunderstandings, reduced performance, and

lower quality reports.

Events such as the Covid-19 outbreak, the US-China trade war, and the Ukraine-Russia war have rapidly changed the operations of companies in various industries around the world. Industries that use a lot of human labor began to reduce the number of workers and switch to robot technology. Service industries that usually have direct meetings with customers are starting to use technology to be able to conduct virtual meetings. Therefore, hospitals as affected institutions should have an integrated system such as ERP so that operations can run smoothly and increase efficiency.

Hospital XYZ has been using ERP since 2020. Before 2020, the Hospital used more than one different application, for example, the application at registration was different from the accounting information system in accounting and finance so that it was not integrated and there were frequent data differences between accounting, billing, and registration administration, so accounting had to adjust manually when there were differences. The hospital also has difficulty in managing its inventory because the inventory in the system cannot follow the actual amount of inventory in the warehouse and must be adjusted manually. Since 2020, Hospital XYZ has been using ABC vendors with ERP products designed for hospitals. This Hospital ERP can be accessed online which integrates between sections in the Hospital. The implementation of ERP causes all employees, especially the Accounting Department, to take time to adapt.

Previous studies examined ERP in twelve organizations in Iran, namely research by Abbasi et al (2014), ERP in thirteen large companies in Canada, namely research by SánchezRodríguez & Spraakman (2012), research by Alsharari et al (2020) which examines ERP implementation in small and medium-sized companies and what challenges are faced in a technology company, and research by Suhaimi et al. (2016) which examines ERP in two construction and property companies in Malaysia. Previous research on the impact of ERP implementation generally takes a large sample (using several companies) and it can be said that it is still very rare to use a single company case study approach (Abbasi et al, 2014). So this is a motivation to fill the research gap. Furthermore, research on the impact of ERP implementation on the financial reporting process in hospitals is still little found. The adaptation process and the benefits of ERP in the face of technological advances are interesting to discuss. This shows that research on ERP implementation at Hospital XYZ is needed. This case study research takes the research perspective of Abbasi et al (2014) with different research objects, namely hospitals and the addition of research questions from Alsharari et al (2020). The reason Abbasi et al (2014) research is used as the main reference is because this research is in accordance with the chosen theme, namely regarding ERP implementation and its impact on accounting. Research of Abbasi et al (2014) is also in accordance with the questions and objectives of this study.

Based on previous research and research problems that have been described. The question of this study is How is the impact of ERP implementation on improving the quality of financial reports, better efficiency, increasing staff coordination, increasing staff satisfaction, and increasing information integration in the Accounting Department at Hospital XYZ?

RESEARCH METHODS

Research Approach and Methods. This research is case study research using a qualitative approach. According to Sekaran & Bougie (2016), analysis in case study research can use qualitative data to explain a phenomenon from the data that has been collected. The method used in this research is triangulation, which is a technique used in research to be more confident in the results obtained by looking from various perspectives (Sekaran & Bougie (2016). The triangulation used in this study is to compare and confirm the results of the questionnaire by conducting interviews.

Research Analysis Unit. The Research Analysis Unit is the patient service unit at Hospital XYZ. Hospital XYZ is a large hospital that has been serving the community for decades and is a class B hospital. The facilities provided are quite numerous and complete, has hundreds of beds, for inpatient rooms provided complete from class three to VIP. Hospital XYZ also has an ISO 9001 certificate. Since 2020 Hospital XYZ has used a special ERP for hospitals from ABC vendors in running its operations. The focus of the analysis is on the accounting and financial reporting aspects of the patient service unit. The observation period carried out in this study is during October 2022.

Data Analysis Method. The data analysis method in this research consists of three stages, which can be seen in the following **Figure 1**:

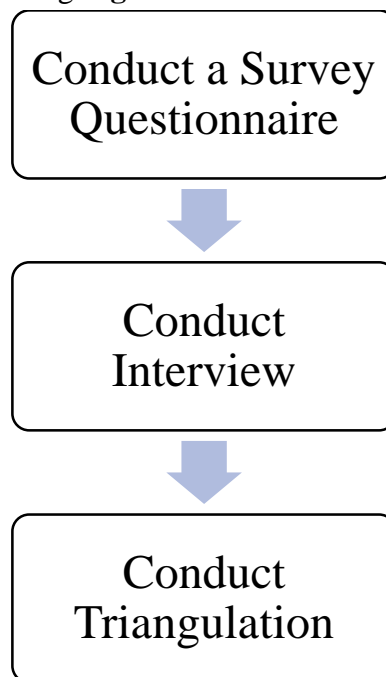


Figure 1. Flow of Data Analysis Methods

Source: Prepared by the Author (2022)

First conduct a survey with a questionnaire that uses a Likert scale as in the research of Abbasi et al (2014). However, in contrast to the research of Abbasi et al (2014), the scale used was one to five, not one to seven. The one to five Likert scale was chosen because the one to five Likert scale makes it easier for respondents to choose, so that the resulting data can be of higher quality

(Revilla et al, 2014). In addition to providing Likert scale questions, this research also provides additional questions on certain numbers. This is to provide additional information for the author in conducting the analysis. Respondents of this questionnaire are accounting and finance staff. Researchers distributed questionnaires to ten people and returned seven. The questions in the questionnaire refer to the research of Abbasi et al (2014) and Alsharari et al (2020). Then conduct semi-structured interviews with Accounting and Finance Manager. Researcher conducted face-to-face interviews with Accounting and Finance Managers which were conducted on October 20, 2022. Semi-structured interviews are conducted so that respondents can explain the interview answers more deeply without getting off the topic of the question. Interview questions asked refer to the research of Abbasi et al (2014) with some additions from Alsharari et al (2020). The results of the questionnaire were then classified and displayed in average values. Then conduct a data triangulation process by comparing and confirming the results of the questionnaire with the results of the interview. Then the results of the final analysis of both (questionnaires and interviews) were compared with previous research and existing theories, which were then used to answer research questions.

RESULT & DISCUSSION

Demographics of Respondents. This research was conducted in October 2022 with the scope of Hospital XYZ patient services. Respondents from this study were six staff, one senior, and one accounting and finance manager. The demographic profile of the respondents of this study is presented in **Table 5.1** below:

Table 1. Demographics of Respondents

| | | |
|-------------------------------|--------------------|--------------------|
| Gender | Male | 2 people |
| | Female | 6 people |
| Latest Education | Senior high school | 3 people |
| | Associate degree | 2 people |
| | Bachelor degree | 3 people |
| Position | Staff | 6 people |
| | Senior | 1 person |
| | Manager | 1 person |
| Duration of Employment | | 4 to 29 years |
| Age | | 30 to 51 years old |

The questionnaire is grouped into five groups according to the research questions. Questions on the questionnaire are answered by choosing numbers one to five in the form of a Likert scale from one for Strongly Disagree (SD), two for Disagree (D), three for Neither Agree nor Disagree (N), four for Agree (A), and five for Strongly Agree (SA). The total is obtained from the number of respondents multiplied by the numbers one to five according to the option chosen, then summed up completely. After that, to get the average, division between the total value and

the total number of respondents is carried out. Then to see the results of each analysis, the Average Value is calculated, namely the summation of the average of each question which is then divided by the number of questions in an analysis. The following is a list of questionnaire survey and interview questions.

Table 2. List of Questionnaire Survey and Interview Questions

| No. | Description |
|-----|---|
| | Improving The Quality Of Financial Reports |
| 1. | With ERP, the information needed to make reports is timely. |
| 2. | ERP can improve accuracy and reduce staff errors in creating reports. |
| 3. | ERP can improve report quality. |
| 4. | ERP can improve the quality of data for decision making. |
| 5. | ERP can increase flexibility in preparing the data needed. |
| | Better Efficiency |
| 6. | ERP can reduce the time needed to generate reports. |
| 7. | ERP can reduce the time required when closing accounts at the end of the year. |
| 8. | ERP can reduce the time required when closing accounts at the end of the month. |
| | Increasing Staff Coordination |
| 9. | ERP can enhance a staff's Information Technology capabilities. |
| 10. | ERP can add information to employees on the operations of other departments. |
| 11. | ERP can improve teamwork. |
| 12. | ERP improves staff coordination in Accounting and Financial Department. |
| | Increasing Staff Satisfaction |
| 13. | ERP can increase a staff's job satisfaction. |
| 14. | ERP can ease the work and activities of a staff. |
| 15. | There are no complaints related to the implementation of the ERP System. |
| | Increasing Information Integration |
| 16. | ERP can create a more integrated hospital financial application. |
| 17. | ERP can improve the cooperation of the Accounting Department and other departments regarding information exchange. |
| 18. | With the use of ERP, there is no longer a difference in data between the Accounting Department and other departments. |

Source: Prepared by the Author (2022)

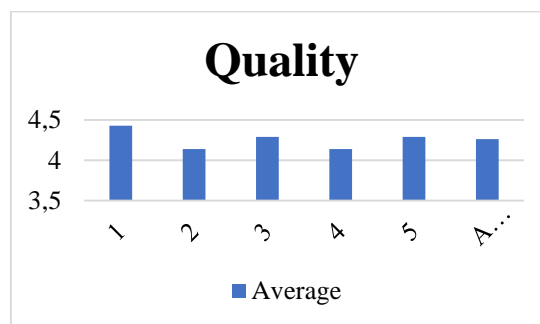


Figure 2. Quality Questionnaire Results
Source: Prepared by the Author (2022)

ERP Implementation on Improving the Quality of Financial Statements. since 2020 Hospital XYZ uses ERP for operational activities. The ERP is web-based and can be accessed

anywhere with various platforms such as computers, laptops, and smartphones. In the financial statements of Hospital XYZ, there are differences in the frequency of preparing financial reports, when using the old Accounting Information System the Accounting Department prepares quarterly, semester, and annual reports. The Accounting Department does not prepare monthly financial reports because the time required to prepare financial reports is very long, even three months. After using the ERP, the Accounting and Finance Department can prepare monthly financial reports within five working days after the end of the month, and fifteen working days for annual financial reports. The answers from the questionnaire in the **Figure 2** show that most respondents agree that for question number one, it can be said that with ERP, the information needed can be timely to make reports.

For question number two regarding ERP can increase accuracy and reduce staff errors in making reports, the respondents mostly agreed, then the respondent explained the difference between the ERP and the old Accounting Information System, namely for the old Accounting Information System there is some data that must be retrieved manually, and is LAN-based so that it can only be accessed in the office, the ERP is more flexible, can be accessed on smartphones and the UI is more attractive and easier. The respondents' answers at **Figure 2** show that most respondents agree that the implementation of ERP has a positive impact on Accounting and Finance to increase accuracy due to the easy to understand UI and can also reduce errors because it is automatically processed in all integrated accounting cycles. The results of the questionnaire from the staff are also in accordance with the interview answers from the accounting and finance manager.

For number three related to improving the quality of financial reports after ERP implementation can be seen from the existence of monthly financial reports, as well as the ease of making adjustment. This is in accordance with the research of Abbasi et al (2014) which states that ERP implementation can improve report quality and standardization.

In addition to improving the quality of reports, the implementation of ERP can improve the quality of data used to create reports. For question number four, it can be seen in the **Figure 2** that most respondents agree that data quality increases, because the data is more valid. After knowing that the data obtained is of higher quality because it is more valid, the next question, number five, is that ERP increases flexibility in preparing data. This can be seen by how easy for the staff to make changes or adjustments, and when staff want to make financial reports that can be made without waiting for the end of the month. For the impact of ERP implementation on improving the overall quality of financial statements, it can be seen from the average value of 4.26, which means most agree. The use of this average value is in accordance with the research of Abbasi et al (2014).

The Accounting and Finance Manager added that there is a problem faced by Hospital XYZ, which is about transactions with BPJS guarantees. The problem faced is that when the staff input BPJS transactions, the rates applied in the ERP are not the same as the rates on the BPJS website, so manual adjustments must be made so that the rates in the ERP can be adjusted to the rates on the BPJS website. This takes a lot of time because the invoice is issued after the tariff is in accordance with the figures on the BPJS website. For the monthly financial report, Hospital XYZ uses estimated figures for BPJS guarantee transactions for invoices which have

not been issued. Meanwhile, at the end of the year, the Hospital records BPJS transactions for transaction which invoices have been issued.

This BPJS problem is being followed up by the ERP vendor, the ERP vendor is in the process of connecting or bridging between the tariff figures in the hospital ERP and the tariff figures on the BPJS website so that there is no need to make manual adjustments because the BPJS tariff in the ERP in the future will change automatically according to the tariff on the BPJS website. This is important because manual adjustments can pose a risk of input errors from accounting and finance staff. To overcome this, the supervisor, in this case the manager, must check whether the numbers in the ERP that have been input manually are the same as the numbers on the BPJS website.

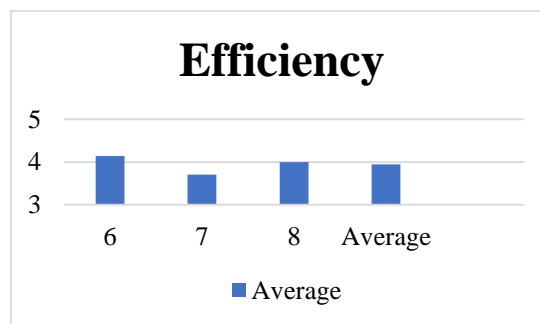


Figure 3. Efficiency Questionnaire Results
Source: Prepared by the Author (2022)

ERP Implementation for Better Efficiency. The old Accounting Information System as explained earlier takes a long time to produce financial statements. The ERP is proven to reduce the time required to create financial reports. For question number six, most respondents agreed. But although the implementation of ERP can lead to better efficiency by reducing the amount of time needed to prepare monthly financial reports according to the result of question number eight, but for the end of the year, namely question number seven, although most agreed, there were some respondents who answered neither agree nor disagree that ERP could reduce the time needed for year-end closing. Employees still need time to adapt so that the preparation of year-end financial reports can be more efficient.

The average value in the **Figure 3** for increasing efficiency with this ERP implementation is 3.95. This shows that most agree and can also be seen from the decrease in the time required to prepare financial reports. Then in addition to the reduced time, the number of staff employed also decreased, previously for the Accounting and Finance Department consisted of sixteen people, while currently only ten people. Most staff agrees that with ERP realizing better efficiency, this is also in line with manager answer. This is consistent with research conducted by SánchezRodríguez & Spraakman (2012) who found that management accounting techniques can be more efficient and effective because the standardization of performance measurement in ERP will increase accuracy and faster processes.

To overcome staff who have difficulty adapting, continuous training is needed so that all staff can maximize the use of ERP. A complete manual is also needed so that staff can learn more

about ERP.

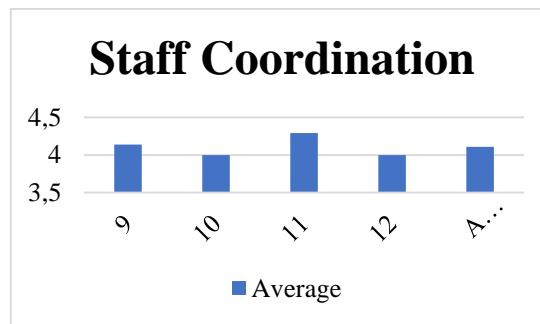


Figure 4. Staff Coordination Questionnaire Results

Source: Prepared by the Author (2022)

ERP Implementation on Improving Accounting Staff Coordination. Researchers asked respondents to provide answers to four questions to find out if ERP Implementation increases the ability of accounting staff. For question number nine, that ERP implementation can improve a staff's information technology skills. The respondents mostly agreed.

In addition to the ability to understand their respective sections, the ability of accounting and finance staff has increased due to the existence of ERP, for question number ten, respondents mostly agreed that many new things can be learned, how the flow of business processes in other sections, because data can easily be seen, even with clear responsibility restrictions where each user can only access modules according to their section, thus creating a secure system. This access restriction also allows each staff to focus and explore the ERP module that is their responsibility, so that their abilities can increase.

For question number eleven regarding increased teamwork related to ERP implementation. Before the use of ERP, the preparation of financial reports need very long time, because it was done manually and the staff were busy with their respective jobs. With ERP, the work can be completed on time and when it is time for monthly closing, the staff can help each other because their respective work has been done. This shows that ERP can improve teamwork in the Accounting and Finance Department.

Also, to answer question number twelve, ERP helps staff understand accounting cycles that are not their part. This is because by helping each other, each staff can learn their friend's work. Overall, the respondents agreed that ERP implementation can improve the coordination of accounting staff with an average value of 4.11. The results in the **Figure 4** are in accordance with research conducted by Suhaimi et al. (2016) who found that with the existence of ERP, it increases the ability of accountants because they can carry out various other analyzes such as financial analysis and policy determination analysis, not only doing data entry.



Figure 5. Staff Satisfaction Questionnaire Results

Source: Prepared by the Author (2022)

ERP Implementation on Increasing Satisfaction Accounting Staff. Most respondents agreed with question number thirteen, that ERP implementation can increase accounting staff satisfaction. This is also evident for question number fourteen, most respondents agreed that with ERP, accounting and finance staff activities have become easier. However, for question number fifteen, although most agreed, there were some respondents who answered neither agree nor disagree regarding whether there were no complaints with the new ERP implementation.

Respondents on average agree that ERP implementation can increase staff satisfaction. This can be seen from the results of the **Figure 5** with an average value of 4.05. Manager also explained that ERP implementation can increase staff satisfaction.

Kanellou & Spathis (2013) research adds that the level of ERP user satisfaction is related to the accounting benefits obtained and the ERP costs incurred. The accounting benefits felt by the Accounting Department of Hospital XYZ are numerous, this is also in accordance with the ERP fees paid to ERP vendors are fixed costs, unlike other ERP vendors who ask for a percentage of sales.

The implementation of ERP at Hospital XYZ is inseparable from complaints. Complaints faced such as sometimes there are unexpected problems or bugs so that the numbers that have been entered are wrong or zero. For the old accounting information system has few advantages compared to ERP, namely because it is not yet cloud-based, the old accounting information system is faster to operate and has minimal bugs. This is because it also has few features, not as many as the new ERP. Although this can be solved because the vendor of the ERP is considered fast and responsive when accounting and finance staff experience problems, and reporting communication is easy because there is a special group and vendors can be contacted easily. But this bugs problem appears repeatedly.

To overcome the problem of bugs in ERP, hospitals can ask the ERP vendor to be able to conduct a thorough evaluation of the ERP system and provide solutions so that the bugs encountered do not recur. ERP system and provide solutions so that the bugs encountered do not recur. This will be beneficial for increasing the satisfaction of accounting and finance staff.

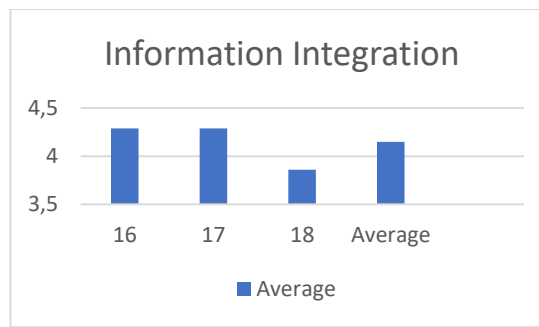


Figure 6. Information Integration Questionnaire Results
Source: Prepared by the Author (2022)

ERP Implementation on Increasing Information Integration in the Accounting Department. For question number sixteen and seventeen most respondents agreed with score above 4 that can be seen in **Figure 6**, This result show that the existence of ERP implementation can result in increased information integration in the Accounting Department.

ERP application is a unified hospital application consisting of various modules for each department in Hospital XYZ. In the past, when asking for data to other departments, the staff was constrained by which data to ask for, it could not be specific. But now that the input data is clearly classified, communication with other departments is easier. In the past, Accounting and Finance Department was very dependent on the Information Technology Department, because data access was centralized in the Information Technology Department. But now the Accounting and Finance Department can directly communicate with the parties concerned and when there are problems, they also can report directly to the ERP vendor. This can be seen in the answer to question number 18, although some respondents answered neither agree nor disagree because of bugs, this can be resolved by the ERP vendor.

Teamwork within the Accounting Department is very good, but teamwork between departments has not improved significantly with the ERP. Staff agree that the implementation of ERP improves Information integration can be seen from the average score of 4.15. The manager also explained that the ERP can improve information integration, especially in the Accounting and Finance Department. Research conducted by Abbasi et al (2014) states that the implementation of ERP improves system integration within the company.

CONCLUSION & SUGGESTION

Conclusion. This study aims to evaluate the ERP implementation in the financial reporting process at Hospital XYZ. After conducting the analysis, the researcher can conclude that the implementation of ERP has a very positive impact on the financial reporting process of Hospital XYZ. First, the quality of Hospital XYZ's financial reports has improved, this can be seen from the ease of preparing financial reports which makes staff only need to enter data once and ERP will automatically process all stages of the financial reporting cycle, so that existing data is more valid and reduces errors, and when there are errors, they can be easily corrected because they support making adjustments, canceling, and automatic reversing journals. Secondly, efficiency is created, because the time required decreases to carry out financial reporting and in terms of costs results in a reduction in the number of staff required. Third, coordination between

staff increases, the existence of ERP causes staff to finish on time and can learn other things by helping the work of other staff who are struggling so that teamwork in the Accounting and Finance Department also increases. Fourth, accounting and finance staff satisfaction increases, with complete features and good service from ERP vendors making it easier for staff to carry out their duties. Fifth, information integration also increases, communication between departments communication between departments is getting better because data inputted by other departments will appear in the Accounting and Finance Department. the details appear in the Accounting and Finance Department, so that cooperation between departments is getting better. department is getting better.

ERP implementation at Hospital XYZ does not only have a positive impact. There are several things that must be improved, the risk of being wrong, related to the input of BPJS tariffs manually. rates in ERP are not the same as the rates on the BPJS website. Staff need adaptation time in using ERP. There are unexpected problems or bugs that recur even though they have been fixed by the ERP vendor. fixed by the ERP vendor.

Suggestion. To overcome the problems that still exist in the ERP system, Hospital XYZ needs to conduct inspections by superiors to ensure that the numbers that have been manually inputted by staff match the numbers on the BPJS website. Continuous training at Hospital XYZ to reduce errors. In addition, there is a need for a complete manual book to study the Hospital XYZ ERP. Requesting the ERP vendor to conduct a thorough evaluation of the ERP system and provide solutions so that the bugs are not repeated.

This research is limited to a case study of a hospital which may differ from the characteristics of other organizations. This research focuses on the accounting and financial reporting aspects. For further research can conduct broader research covering other functions, such as inventory, supply chain, and others.

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