



## **Improving the quality of business processes with Financial information systems**

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**Abstract** – This study aims to analyze the impact of the application of information technology on the company's business processes, especially in the financial administration process. The analysis technique adapts the Miles and Huberman model using the Business Process Management (BPM) framework. The BPM framework was chosen because it can provide a more comprehensive measurement in assessing the implementation of the use of information technology in the financial administration process. There are three research stages: data reduction from documentation, questionnaires, and interviews. Then the data is presented using the matrix and the Business Process Management Notation (BPMN) model. Moreover, the last is the conclusion formulation stage with evaluation using the Business Process Improvement (BPI) framework. This study shows that applying financial information systems in companies has benefits in simplifying processes, saving cycle time, preventing errors, increasing standardization, and improving large-scale processes by automating company processes.

**Keywords:** Business Process Management; Financial Information System; Financial Administration Process; Business Process Improvement.

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### **1. Introduction**

In the era of the Industrial Revolution 4.0, the use of this technology is needed to optimize the company's business processes. Many companies are digitizing their business processes to increase the effectiveness and efficiency of company operations [1]. From the production department, customer service, administration, and finance to top management using information



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technology to assist its operations. Companies that still survive conventionally will undoubtedly lose in an increasingly dynamic competition [2].

One of the company's business operations activities is financial administration. Financial administration activities are one of the company's main activities that show how the company manages company documents and information well and financial management. The company's financial administration process includes the company's financial preparation and planning activities; regulation of the flow of company funds movement; analysis of debt, assets, and payment schemes; Auditing; and Archiving and managing securities [3]. Given the importance of financial administration activities, in the era of the Industrial Revolution 4.0, companies must also digitize the company's financial processes.

Digitalization in the company's financial administration process will impact five keys to improving the quality of business operations [4]. First. Digitization is a means of improving operations with more diverse and complex economic data for analysis. The application of information technology in the company's business processes allows management to quickly access the necessary data both within and outside the company. Information technology can perform various formulas as complex as any to improve calculations and assessments that are useful in increasing the accuracy of company analysis [5].

Second digitizations have more guaranteed speed and accuracy. With information technology, business processes in the company can be carried out in real-time without depending on time and place. Each integrated process will ensure that it can directly produce output in the system. Utilization of company information technology can also minimize the risk of errors, with processing accuracy results of almost one hundred percent [6].

Next, digitization provides innovation capabilities in the company's data security efforts. Many cases show that the low security of company data causes the company's failure. This is important considering that the data contains strategic information as the basis for future decision-making. Therefore, digitization has a unique program algorithm in each development. This allows company management to design better security and continue to evolve [7].

The fourth impact of digitization is the creation of much better transparency. The conventional way of conducting business processes with people to people processes causes a high risk of company transparency. Receiving and sending information by people to people can be influenced by high subjectivity, causing bias. Therefore, with information technology, control of the flow of information can be more controlled. This control can be done automatically through the technology system, thus creating better transparency.

Furthermore, digitalization's impact on the company's financial processes is increasing the relevance of financial information to enable companies to make better strategic decisions. One of the four benefits of digitalization is creating the best strategic decisions. For the company, every step that will be decided requires careful consideration because it impacts the company's sustainability. Therefore, by combining all the benefits of digitization, the company can improve business quality [8].





Based on the explanation above, this research will analyze the application of technology in the business processes of the financial activities of the training service company. Several previous studies have evaluated the application of information systems to the business processes of companies from various industries. Such as research from Ekasari et al., (2021) shows an increase in risk control with the application of information technology in the pharmaceutical industry in Indonesia. Another study from Ishmail & Tully, (2020) and Yasin, (2022) shows an increase in the quality of decision-making with information technology. Research from Bowdle et al., (2019) and Wibawa, (2022) also shows a significant influence on the use of technology in the company's audit process and internal control.

Analysis was carried out using the Business Process Management System (BPMS) framework to get better results. A business Process Management System (BPMS) is a framework used to provide optimal control over the company's business processes. This framework can be applied to provide assessment and evaluation to maximize the level of effectiveness and efficiency of the company [14]. The BPMS framework will conduct a comprehensive analysis by drawing a business process model using the Business Process Management Notation (BPMN) for further implementation evaluation analysis using the Business Process Improvement (BPI) framework [15]. Documentation, interviews, and questionnaires do data collection. Data analysis uses the Miles and Huberman Model. The study's results are expected to provide an evaluation analysis showing how much impact digitization has on the company's financial business processes.

## 2. Research Method

This research is qualitative with a primary data collection method using interviews and questionnaires while secondary data collection with documentation. The data analysis method uses the Miles and Huberman model approach. This model is considered appropriate because it has three systematic stages to produce better conclusions. This model can also be combined with the Business Process Management (BPM) framework.

In this study, data analysis was carried out in three stages, Miles and Huberman [16]. The first is the reduction stage. At this stage, all data collected from documentation, interviews, and questionnaires will be processed to find data relevant to the research objectives. Respondents who became the object of research were selected based on two categories. The first respondents are company employees, which is the object of the research. Second, respondents are employees who play a role in the financial administration business process so they can feel the impact of implementing the company's financial information system. The reduction stage eliminates some of the information obtained from interviews and documentation because it is unrelated to research needs. The data and information that pass the reduction stage are information related to the company's business processes, the company's financial system, and the company's financial process problems.

The second stage is the presentation of the data. At this stage, the previously considered relevant data is formulated in the form of models and matrices containing the synthesis of results





and answer keywords to facilitate the identification and further analysis. At this stage, the BPMN model presents information on the results of documentation and interviews related to the company's business processes. Meanwhile, the questionnaire results are presented in the form of a matrix. The last stage is concluding. This stage identifies and analyzes the evaluation of the data and information that has been presented [17]. In this study, conclusions were drawn by evaluating based on the Business Process Improvement (BPI) assessment category.

### **3. Results and Discussion**

#### **3.1 Company Financial Administration Process Analysis**

In the company's financial administration business process, there are two main financial activities: reporting income and company expenses. That is the object of this research, reporting on the company's financial income and expenses is carried out by the company's financial admin section. The process of reporting income and expenses before applying information technology is shown in the as-is model in Figure 1. The first activity begins with recording daily income or expenditure transactions manually. Then the financial admin makes a recapitulation report of income and expenses each period using a desktop-based application. Finally, the report was sent to the company management via electronic message as a form of accountability.

The company's financial administration process based on the as-is model has many weaknesses. The first is the high risk of errors during processing, such as data recording errors, data loss, missed information, and personal errors that are prone to occur in the manual process. Second, the as-is model shows a relatively long processing time. This is because data processing data manually requires processing time that depends on user subjectivity. The last weakness of the business process in the as-is model is management's weak level of supervision and control. The financial reporting process on the as-is model is very personal from the company's financial admin. Management receives periodic recapitulation reports via electronic messages, which have a high possibility of information bias between the sender and recipient of the message [18]. The three weaknesses indicate fundamental problems that must be resolved in the company's business processes. Moreover, this process involves the company's financial data, which should have a strong level of control over the company's processes [19].

Based on this explanation, the implementation of information technology should be able to solve problems in the company. The use of financial information systems in the company's business processes is depicted in the to-be model in Figure 2. The financial administration process in the to-be model uses a financial information system. Record income or expenditure by inputting directly into the system and make the system's recapitulation process automatically in real-time. Furthermore, the reporting process to management is carried out by downloading the results of the recapitulation report on the system.

Applying a financial information system described in the to-be model provides several advantages for the company. First, in terms of time, the reporting process using personal electronic messages takes a relatively long time, in contrast to the use of the system in the to-be model, which can cut processing time much faster. Optimizing the time used in the financial





reporting process can impact the productivity of company employees [15]. Second, in the to-be model, the use of systems in the company's business processes provides an opportunity for management to control and supervise every company's financial transactions to improve control quality. By using the system, the risk of errors can be minimized because the processing of incoming and outgoing transactions is carried out automatically by the system algorithm. This has an impact on the accuracy of company's financial information accuracy. Financial information that is getting better and more relevant can be the basis for improving the quality of strategic company management decisions [20].

The following analysis compares the data processing time and the number of activities to produce the same output. In the as-is model of the company's financial administration process, four activities must be carried out to complete the company's financial reporting process. The time required for each processing with the as-is model is 150 minutes. Meanwhile, in the to-be model, only three activities must be carried out to get the same reporting output. The time required for one processing is 9 minutes for the to-be model. This shows that with the implementation of the financial information system, there is a reduction in one non-value added activity and processing time savings of more than two hours. It means that digitalization in the company's financial administration process is proven to increase the effectiveness and efficiency of the company's business processes.

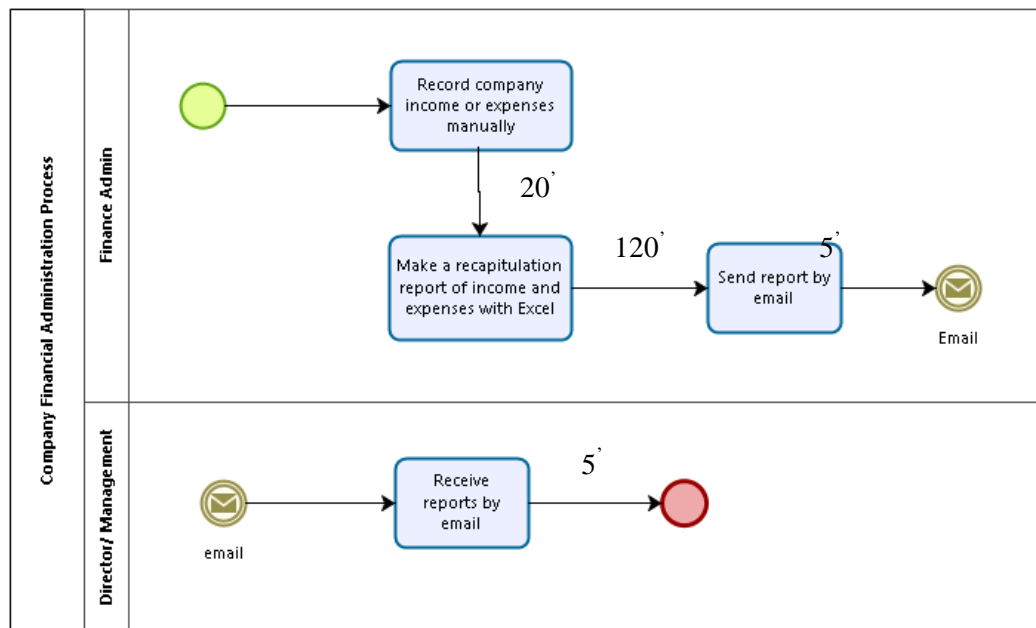


Figure 1. Financial Administration Process (As-is Model)



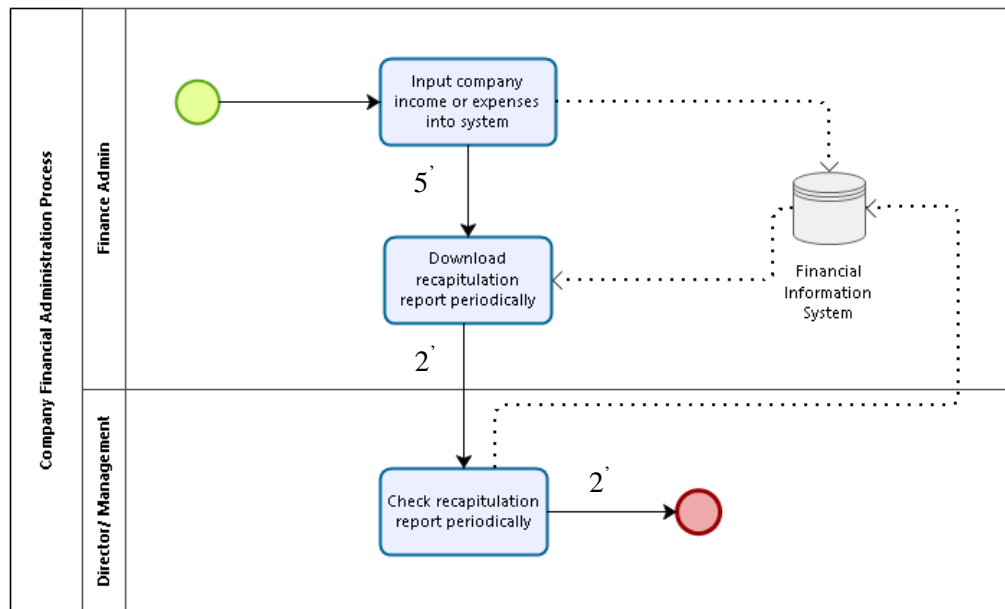


Figure 2. Financial Administration Process (To-Be Model)

### 3.2 Evaluation of the Implementation of Financial Information Systems

The evaluation of the system in this sub-chapter will measure the extent to which digitalization of the company's financial administration process with the implementation of the financial system has an impact on increasing the effectiveness and efficiency of the company. The Business Process Improvement (BPI) assessment basis is used in carrying out the measurements. The Business Process Improvement (BPI) has six measurement criteria to analyze the achievement of the objectives of applying the financial information system in this study. The six criteria include Simplification, Process cycle-time reduction, Error proofing, Standardization, Big picture improvement, Automation, or mechanization. The evaluation process uses the results of questionnaires and interviews with users of the company's financial information system. There are at least ten respondents comprising company directors, head of central finance admin, branch office finance admin, and marketing supervision.

There are 13 questions given in the questionnaire and interviews with the informants. All questions evaluated the assessment of BPI's six criteria for using the company's financial information system. The details of the questionnaire questions can be seen in appendix 7. The results of the interviews and questionnaires can be seen in Table 1.





*Table. 1 Synthesis of Interview Results and Questionnaires*

No.	Evaluation Criteria	% Statement	Keyword Answer
1.	Simplification	: 80% : 20% : 0%	"easy to use" ; "reducing cycle processes"
2.	Process cycle-time reduction	: 100% : 0% : 0%	“no need to wait”; “faster”; “real-time”; “can save time”
3.	Error proofing	: 100% : 0% : 0%	“reduce human error”; “secure database”; “relatively safer.”
4.	Standardization	: 100% : 0% : 0%	"the data sent by each branch is the same"; "Enter detailed information"
5.	Big picture improvement	: 90% : 10% : 0%	“more precise reporting time”; “Standard Operation Procedure are better”
6.	Automitiation	: 100% : 0% : 0%	"real time"; "anywhere"; “only need digital device access”

Source: Processed Data (2022)



: Agree



: Not Sure



: Don't Agree

### 1. Simplification

The first criterion in analyzing the implementation of the financial information system in the company is a simplification. The implementation of a financial information system by the design objectives must be able to provide simplification of the company's business processes. This simplification includes reducing activities without value in producing business process outputs.



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The results of the questionnaires are that 80% of respondents agreed with simplifying the process by implementing the financial information system. In the analysis of the implementation of the research financial information system, the new business process is proven to reduce several activities in each sub-process. Reducing the number of activities that must be done to get the same output results simplifies the new business process. The remaining 20% are still doubtful about the impact of simplifying the process. This is because of the previous process (as-is model) for the marketing team, sending reports only through electronic messages, which are more familiar to access. Meanwhile, in the new process (to-be model), the marketing team must regularly access the web system.

#### 2. Process cycle-time reduction

The second criterion is the reduction of process cycle time. In the company's business processes, the process cycle time is significant to measure how much the cycle affects employee productivity. This cycle time is measured from the time it takes from the start of the activity until the process output is obtained.

The results of questionnaires and interviews found that 100% of respondents agreed there was a reduction in cycle time from applying this financial information system. Based on the overall implementation analysis results, the use of financial information systems was able to cut processing time by almost two hours so that the acceleration of this cycle shows the fulfillment of the second evaluation criteria.

#### 3. Error proofing

The following measurement criterion is error prevention. Information systems that are implemented in changing the company's business processes must be able to minimize errors. This is closely related to the quality of the business process output. The higher the risk of errors, the lower the output quality. Therefore, implementing new business processes with the help of financial information systems should reduce the risk of errors.

From the results, 100% of respondents stated an increase in error prevention in business processes from using the system in the company. The implementation of a financial information system within the company can reduce risks in terms of the data input process and data documentation. Regarding data input, the previous process only relied on electronic messaging services with the people-to-people model, so errors were prone to occur. Meanwhile, in the current process, all information can be input through the financial system, which can be controlled directly by management. Furthermore, regarding data documentation, the previous process of archiving data only with desktop folders and manual processes has a high risk of loss. Meanwhile, implementing the new process system provides access to a digital cloud-based internet database so that security is more controlled than the manual process.

#### 4. Standardization

The fourth criterion assessed is standards for the company's business processes. Standardization is critical to ensure that the company's business processes have measurable quality in terms of input and output. Business processes must be able to provide new, more







standardized standards. This ensures that business processes can be carried out by anyone without dependence on a particular subject and produce quality output.

The results of the questionnaires and interviews stated that 100% of the respondents agreed that there was better standardization in the new business processes. The new business process using the system is proven to provide a higher quality standard for the company. Implementing the system at least provides new and standard standards for petty cash financial data, income financial data, petty cash reports, and company income reports. This is because in inputting data, the system has given direction to the data needs that the user must meet. Likewise, the process of making reports is carried out in an automatic system so that the form and results of reports are standardly obtained from the system's processing.

#### 5. Big picture improvement

Large-scale improvement refers to the company's general improvement in implementing new business processes. Large-scale improvements consider system implementation's direct and indirect impacts and effects on the company's broader business activities.

From the results, 90% of respondents agree with the company's improvement on a large scale. The use of financial information systems in the company has an impact on making strategic decisions in the future. This is because the system improves the company's financial information quality. So that future strategic decisions and policies are also based on more valid and relevant financial information and data. Therefore, management decision-making will also increase along with the quality of the underlying information. In comparison, the remaining 10% are still hesitant about large-scale improvements due to possible limitations on the use of the system that must be improved in the future.

#### 6. Automation or mechanization

Lastly is automation. In the era of the industrial revolution 4.0, the company's strength is closely related to the use of information technology [2]. Companies that use information technology in their activities should be more adaptive and compete with their competitors. Automation also shows that the company's business processes can run well and regularly by themselves without having to involve management instructions every time.

The interviews and questionnaires show that 100% of respondents agree with the automation of the new business processes. The application of a website-based financial information system in the company's business processes shows that there is an automation process in it. The process of financial reporting, significantly petty cash and income at the company, has now been accommodated by the system processing. So that petty cash reports and income can be automatically updated in real-time. Website technology with internet network access also provides convenience in integrating the company's business processes, especially from branch offices to the head office. This shows that the sixth criterion has also been met.

Based on the evaluation results, it can be concluded that the implementation of the financial information system in the company has met all the criteria for Business Process Improvement (BPI) used to assess the implementation of the system in the company. These criteria include simplification, process cycle time reduction, error prevention, standardization, large-scale





improvement, and automation. The results of this evaluation prove that implementing a new business process with a financial information system can increase the effectiveness and efficiency of the company's business processes.

#### 4. Conclusion

Digitalization of business processes in the era of the industrial revolution 4.0 is one of the strengths companies must have to compete. Integrating company activities with information technology provides benefits in increasing the effectiveness and efficiency of the company's business processes. In this study, the Business Process Management Framework is used to assist companies in analyzing the quality of the company's business operations processes. The company's problems and potentials are described using the Business Process Management Notation (BPMN) modeling and then evaluated through the Business Process Improvement (BPI) category. The results show that digitizing the financial administration process impacts process simplification, cycle time savings, error prevention, increased standardization, and large-scale improvements by automating company processes.

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