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Analysis of Accounts Payable and Accounts Receivable Accounting Information Systems on Building Materials Small and Medium Enterprises (SMEs) Using the PIECES Method

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ABSTRACT: Using the PIECES method, this study aims to examine the accounts payable and accounts receivable accounting information systems of building materials SMEs. Based on the PIECES method, there are six analysis variables: Performance, Information, Economy, Control, Efficiency, and Service. This study is descriptive qualitative in nature, with a case study approach. The data type used is primary data. Data gathered at UD. Rizka Jaya through observation and interviews. The findings indicate that UD. Rizka Jaya's accounting information system has flaws in the six aspects of the PIECES analysis assessment variable. This is due to the lack of an accounting information system and a weak internal control system. It is propose, UD. Rizka Jaya developed a computer-based accounting information system for accounts payable and accounts receivables along enhanced the internal control system as it can produce information that supports decision-making.

KEYWORDS: Accounting Information System, Business Process Modelling Notation, PIECES Method, Accounts Payable, Accounts Receivables

I. INTRODUCTION

The Accounting Information System is a system used to help manage and control data and information related to the economic and financial sector of the company (Grande, Estébanez, & Colomina, 2011). Not only do large company require adequate Accounting Information Systems, but also do Small and Medium Enterprise (SMEs). SMEs firms in developing economies lack the supporting legal framework, institutional infrastructure, and ineffective management system (Salisu & Bakar, 2020). Therefore, it is necessary to design the value of a good Accounting Information System to provide more value for a company such as improving the quality and reducing the cost of products and services, increasing supply efficiency and effectiveness, improving internal control, and assisting the decision-making process (Romney & Steinbart, 2018).

One of the main issues of Building Materials SMEs is the accounts payable and accounts receivable control system. This relates to business activities, such as the sales cycle and the receivables collection cycles (Setyadi, 2019). Sales are a business's primary source. Arrears on accounts receivable disrupted business operations and affected management decisions. Therefore, accounts receivables must be carry out appropriately in line with the conditions of each customer, so the business operations can run successfully. Arrears on accounts receivable also affected cash flow and debt payments, resulting in outstanding debts.

UD. Rizka Jaya is a building material SME that has been in existence since January 2, 2008. UD. Rizka Jaya had issues with the account payable and account receivable control system for the past 12 years, with an average monthly turnover of 700 million rupiahs. UD. Rizka Jaya does not know and does not have a schedule for collecting receivables from consumers or a reminder plan for paying debts to suppliers under the manual system. Even though there are 52 consumers engaged in real estate developers, each transaction conducted on credit with a considerable nominal. As a result, receivables payments that exceed the credit period of one month are prevalent, and some receivables are uncollectible. Aside from that, there are frequently arrears in payment of debts to suppliers due to a lack of cash.

Sales transactions, inventory information, accounts payable and accounts receivables management are the main problems in managing the building material store (Setyadi, 2019). However, prior studies focuses on sales Accounting Information Systems and inventory information system (Farisy & Santoso, 2019; Imaniawan, 2019; Sumboro, Pamungkas, & Jagad, 2020) while, this

study aims to determine and evaluate the application of the existing accounts payable and accounts receivable information system at UD. Rizka Jaya using the PIECES method.

To solve the problem of the accounts payable and accounts receivable information system at UD. Rizka Jaya, it is necessary to analyse the Account Payables Turnover Ratio and Account Receivables Turnover Ratio. It is intend to find out the actual condition of the accounts payable and accounts receivable ratio, but also the efforts to manage the accounts payable and accounts receivable in the future (Ardiyaningrat & Purnamawati, 2013).

Then, it is necessary to analyse the business processes of the accounts payable and account receivables, to know the process and sub-processes regarding the activities and the actors involved. Analyzing and modelling business processes can be done by using Business Process Modelling (BPM) techniques. BPM is the initial stage for developing a system for detecting ineffective business processes and modelling business processes in an organization. BPM is need for organizations to improve and evaluate business processes within an organization (Kahloun & Ayachi-Ghannouchi, 2020). One of the functions of BPM is to serve as the basis for determining service quality, sharing knowledge, complying with regulations, and coordinating among stakeholders (Snoeck, Oca, Haegemans, Scheldeman, & Hoste, 2015). Modelling business processes can be done by making Business Process Modelling Notation (BPMN). BPMN is a standard to create business process models with a graphical notation to explain the business processes (Ismanto, Hidayah, & Charisma, 2020).

Finally, after describing the existing accounts payable and receivables business process by BPMN (BPMN As-Is), the BPMN As-Is were analysed using the PIECES method. There are six analysis variables based on the PIECES method: Performance, Information, Economy, Control, Efficiency, and Service. The PIECES method, according to Ragil (2010), is an analytical method for obtaining specific issues. Wetherbe (2012) stated that the purpose of the PIECES analysis is to improve the existing system based on the six analysis variables. So that problems related to the six analysis variables can be identify, resulting in specific and dependable system improvement solutions. Meanwhile, according to Ragil (2010), the advantages of the PIECES analysis include: (1) Identify problems specifically based on six analysis variables (Performance, Information, Economy, Control, Efficiency, and Service); (2) Provide specific and reliable repair solutions to the system; (3) Provide a clear comparison between the current system and the relevant theory in the implementation of an effective and efficient system.

II. RESEARCH METHODS

A. Types of Research

This research is descriptive qualitative research with a case study approach. Qualitative research with a case study approach is social research to investigate, understand and examine a problem. The research carried out by collecting and processes various information to solve the problem. According to Herdiansyah (2015), case study research is a research design that is comprehensive, intense, detailed, and in-depth and directed as an effort to examine contemporary problems or phenomena. This research carried out in stages, including a literature review, data collection, and the identification of an accounting information system. The data type is primary data. Data collected at UD. Rizka Jaya through interviews and observations to relevant parties.

B. Accounts Payable and Accounts Receivable Turnover Ratio Analysis

Account Payable Turnover Ratio is a financial ratio that shows the company's ability to pay off debt by comparing net credit purchases with the average trade payables during a period. In other words, this accounts payable turnover ratio is a liquidity ratio that evaluates how many times a company can pay off its average debt balance for one year to suppliers.

A good trade payable turnover ratio is a ratio whose value is getting bigger. Because the higher the ratio value, the faster the company times period in paying debts to its suppliers (Ariasna & Syifak, 2014). The faster the repayment period of debt to suppliers, shows that the company can manage its business debt properly. Accounts payable that paid faster also shows that the company has cash and current assets to pay its debts to suppliers, without delaying it any longer.

The following is the equation for Accounts Payable Turnover Ratio:

Accounts Payable Turnover Ratio = Total Credit Purchases / Average Accounts Payable

Then to calculate the Average Debt Repayment Period, the equation is as follows:

Average Debt Repayment Period = 360 days / Accounts Payable Turnover Ratio

The Account Receivable Turnover Ratio is a financial ratio that proves how quickly credit sales converted into cash in a given period. This ratio primarily used to assess the company's efficiency in credit management and collection. As a result, account receivables control is something that the company must perform (Ardiyaningrat & Purnamawati, 2013). The higher the account receivables turnover ratio, the better the company's ability to manage its receivables, it is indicate the account receivable is low.

Conversely, a lower receivables turnover indicates that the company is unable to collect receivables from customers, raising the risk of potential bad debts. A good accounts receivable control system will affect the company's ability to implement credit sales policies. On the other hand, negligence in controlling accounts receivable can be potentially lethal for the company.

The following is the equation for Accounts Receivable Turnover Ratio:

Accounts Receivable Turnover Ratio = Total Credit Sales / Average Accounts Receivable

To calculate the Average Receivable Collection Period, the equation is as follows:

Average Receivable Collection Period = 360 days / Accounts Receivable Turnover Ratio

C. Accounts Payable and Account Receivable Accounting Information Systems Analysis

At this stage, identification of business processes in the accounts payable and accounts receivables accounting information system at UD. Rizka Jaya carried out. The identification process through interview and direct observation. Interviews conducted with several parties involved in the accounts payable accounting information system. The results from interviews and observations drawn using the Business Process Modelling Notation (BPMN) and then analysed by the PIECES method.

III. RESULTS AND DISCUSSION

A. Accounts Payable Turnover Ratio Analysis

The data used in the accounts payable and accounts receivable turnover ratio analysis is credit purchases and credit sales; accounts payable, per Jan 1, 2020, and per Dec 31, 2020; and accounts receivable per Jan 1, 2020, and per Dec 31, 2020. Since the object does not yet have a recap of these data, data collection is carried out manually by recapping notes or evidence documents one by one with the help of the Microsoft Excel application. The results of the data collection shown in Table 1.

Table 1: Data on sales, accounts receivables, purchases and accounts payables of UD. Rizka Jaya

No	Information	Year 2020 (IDR)
1.	Credit sales	8,451,264,500
2.	Accounts Receivable, per Jan 1 2020	793,638,000
3.	Accounts Receivable, per Dec 31 2020	1,172,441,000
4.	Credit Purchase	17,737,905,000
5.	Account Payable, per Jan 1 2020	2,609,265,000
6.	Account Payable, per Dec 31 2020	4,533,957,000

Source: Processed data (2021)

Based on Table 1, the results of the account receivables turnover ratio (ARTR) in 2020 are 9 times, it means UD. Rizka Jaya was able to collect his receivables 9 times in a one-year period. As we know, the greater the receivables turnover ratio, it shows that the company has a good ability to collect and manage its receivables, so the value of its receivables is small. Conversely, the smaller the receivables turnover ratio, it indicates that the company is unable to collect receivables from customers, so this raises the risk of possible bad receivable. Then, based on the calculation of the average receivable collection period (ACP) is 42 days, it means that the average time for collecting receivables from UD Rizka Jaya is 42 days, where this exceeds the maturity limit that set by UD. Rizka Jaya (30 days).

Furthermore, based on Table 1, the results of the accounts payable turnover ratio (APTR) in 2020 are 5 times, which means UD. Rizka Jaya was able to pay their debts 5 times in a one-year period. A good accounts payable turnover ratio is a ratio whose value is getting bigger. Because the greater the value of the ratio, the faster the company's time in paying debts to its suppliers. The faster the repayment period of debt to suppliers, shows that the company can manage its business debt properly. Trade payables paid faster, indicating the company has cash and current assets to pay its debts to suppliers, without delaying it any longer. Meanwhile, based on the calculation the Average Debt Repayment Period is 72 days, where this exceeds the maturity limit set by the supplier, which is 60 days.

Based on the calculation results, it is known that the account receivables turnover ratio and the accounts payable turnover ratio of UD. Rizka Jaya has a value that is not too high as well as the average value of the receivable collection period and the average value of debt deferral whose value exceeds the maturity date. Thus, the company needs to review its accounts payable accounting information system, besides that the system needs to apply consistently, so that each related section has attention and responsibility for their respective duties (Ardiyaningrat & Purnamawati, 2013). Then the company also needs to improve the

control and supervision system of the accounts payable accounting information system, because this can support effective control (Ariasna & Syifak, 2014).

B. Company Business Process Analysis

In this section, the business processes related to the accounts payable and receivables accounting information system at UD. Rizka Jaya will be explained, namely the business process of credit sales, credit purchases, collection of receivables and debt collection. In this process, the Business Process Modelling Notation (BPMN) tools assisted. Information about business processes obtained through direct interviews with related parties such as owners, admins, and heads of delivery. The following is an explanation of the business process of accounts payable and receivables accounting information system at UD. Rizka Jaya.

a. Credit Sales Business Process

The business process flow of credit sales, among others:

1. Customers make orders accompanied by providing a guarantee to the Admin. If the customer is an official agency, the guarantee document is Memorandum of Understanding (MoU), while if the customer is an individual, the guarantee document is ID card.
2. The admin then informs the customer's order and submits the guarantee document to the UD. Rizka Jaya owner.
3. The owner will assess the customer's order and guarantee eligibility. If the owner does not approve the order then the guarantee document will be return to the Admin and the Admin will return it to the customer. However, if the owner approves the customer's order, then the Admin will create an invoice and record the order. The invoice consists of three copies. First duplicate to be stored as archives, second duplicate to be given to customers, and third duplicate for shipping.
4. The admin enters a duplicate invoice into the customer card and records the order to the customer card. Then the admin records the order to the delivery book and gives the third copy of the invoice to the head of delivery.
5. The head of delivery receives the third duplicates of invoice, and then he will arrange the delivery schedule.
6. The driver sends the goods to the customer and the Admin records to the delivery book that the order has been send to the customer.

The ongoing business process of selling goods on credit described by BPMN (as is) as shown in Figure 1.

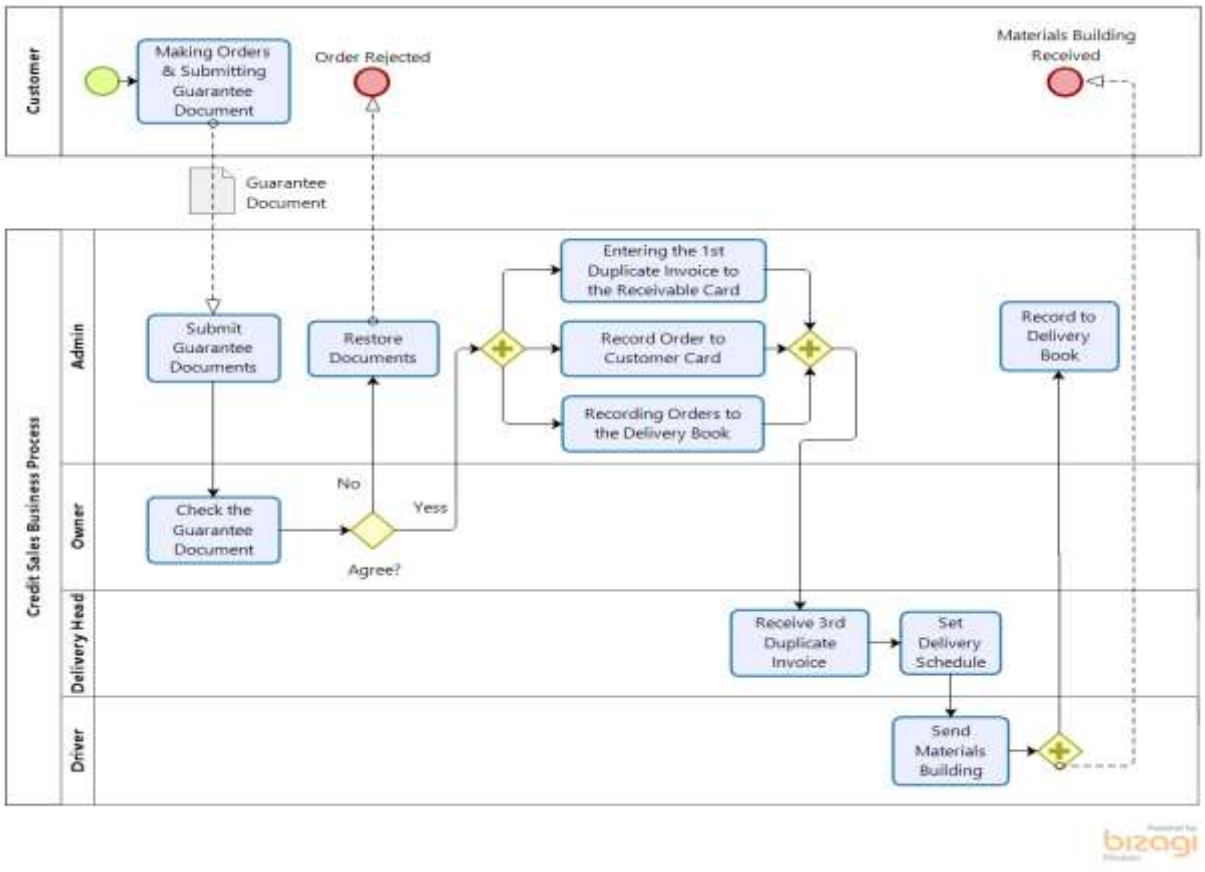

Figure 1: Credit sales BPMN (as is) of UD. Rizka Jaya

a. Receivable Collection Business Process

The business process flow for collecting receivables from customers is as follows:

1. The admin checks the customer's card to see the receivables that are past due, where this is do at an uncertain time depending on the admin's leeway.
2. After the admin checks the receivables that are due, then the admin reports to the owner.
3. Next, the owner makes billing to customers by telephone.
4. Then the customer will receive a bill, if the customer immediately pays the bill, then the owner will receive payment for the receivables, and the owner will report to the admin, then the admin will record the payment to the customer's card. If the customer's receivable has been pay off, the admin will provide an invoice (First Duplicate) and guarantee document, but if the receivable has not been paid off, the admin will make a payment receipt, where first duplicate of the payment receipt is stored on the customer's card and second duplicate of the payment receipt are given to the customer.
5. On the other hand, if the customer does not pay the bill immediately, the customer will re-deal with the owner until a new agreement agreed regarding the time for payment of the receivables.

The following is the business process of receivables collection business process described by BPMN (as is) as shown in Figure 2.

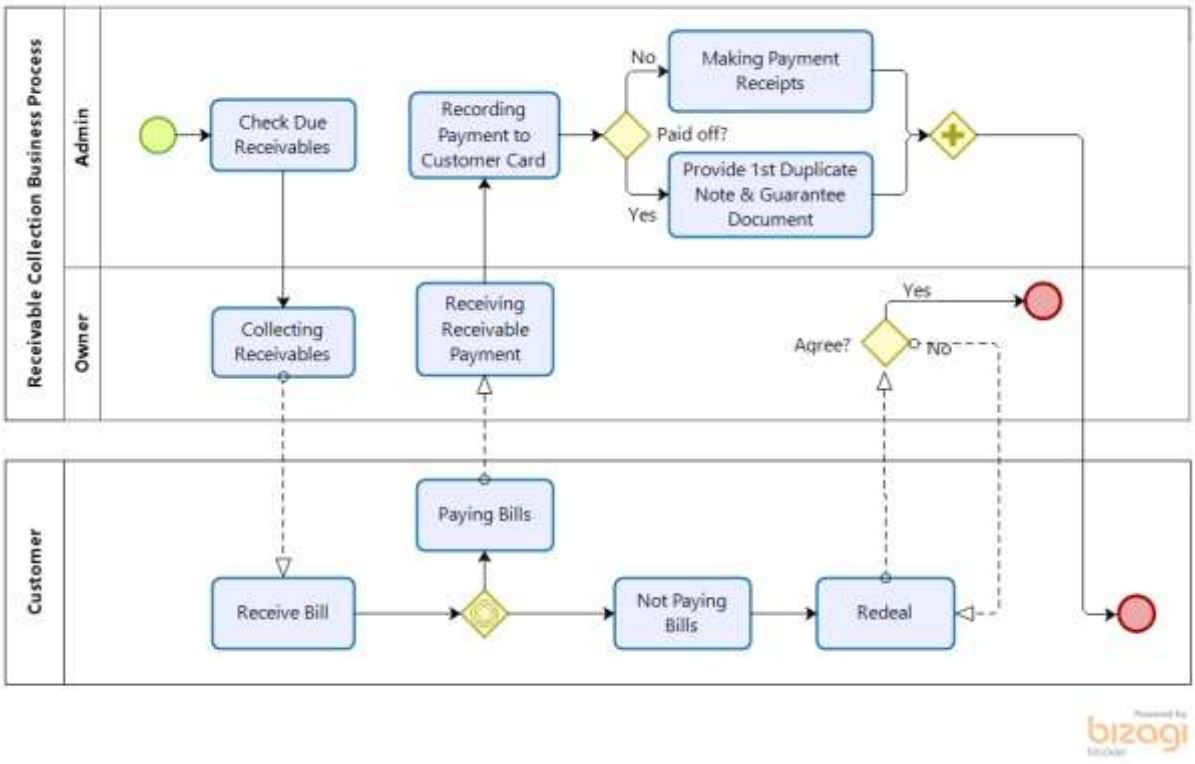

Figure 2: Receivable Collection BPMN (as is) of UD. Rizka Jaya

b. Credit Purchase Business Process

The credit purchase business process, as follows:

1. Admin fills shop registration form to supplier.
2. Next, the owner makes a purchase order in accordance with the purchase limit provided by the supplier.
3. Then the sales supplier receives the store registration form and purchase order.
4. Next, the supplier sales report the purchase order to the supplier admin. Moreover, the supplier will ship the goods to the buyer.
5. When the supplier has sent the goods, the Admin will receive a delivery note and purchase invoice from the supplier. After that, the head of delivery will check the condition of the goods.

The following is the business process of purchasing goods on UD. Rizka Jaya described by BPMN (as is) as shown in Figure 3.

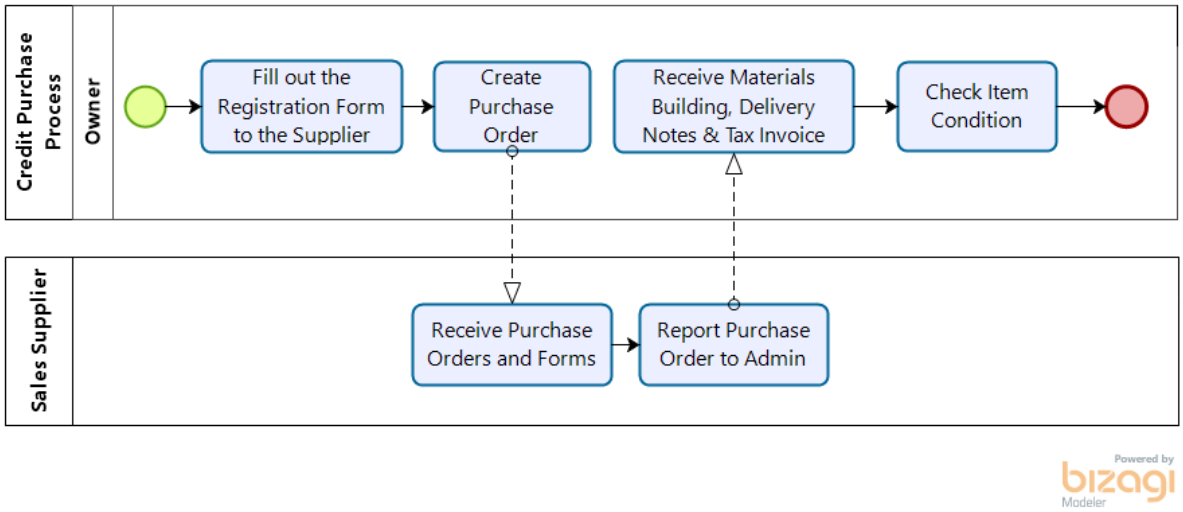

Figure 3: Credit Purchase BPMN (as is) of UD. Rizka Jaya

c. Accounts Payable Collection and Payment Business Process

UD Rizka Jaya's business process for collection and payment of accounts payable, as follows:

1. Sales suppliers will visit every debt maturity.
2. Then the owner of UD. Rizka Jaya will receive a bill from the sales and will pay the bill. If the accounts payable paid off, the sales will offer new credit or new products. However, if the accounts payable does not paid off, the sales will make another visit at the next maturity.
3. If at the time the sales supplier comes to collect the receivables, the owner has not been able to pay the bill, and then a re-agreation will be maded regarding the due date until a new agreement is agreed.

The following is the business process of Accounts Payable Collection and Payment UD. Rizka Jaya described by BPMN (as is) as shown in Figure 4.

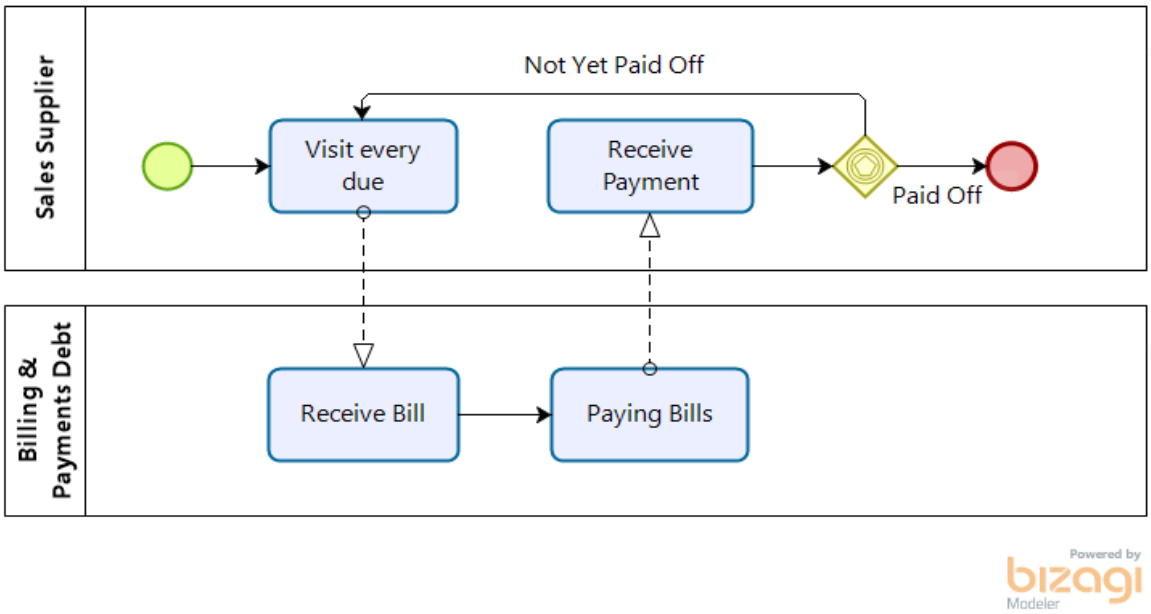

Figure 4: Accounts Payable Collection and Payment BPMN (as is) of UD. Rizka Jaya

C. PIECES Analysis of Accounts Receivable and Payable Information System at UD. Rizka Jaya

According to Al Fatta (2007), PIECES analysis (Performance, Information, Economy, Control, Efficiency, and Service) is one of the methods used in an analysis to find out the weaknesses of a system. In the analysis using the PIECES method, the accounting

information system will be compare based on six analysis variables (performance, information, economy, security, efficiency and customer service) on the accounting information system applied to the research object. In this study, we will compare the accounts payable accounting information system with the theory of Al Fatta (2007) in his book entitled Analysis and Design of Accounting Information Systems.

From the results of the analysis, it can be assess whether all accounts payable and account receivables accounting information systems applied by UD. Rizka Jaya was in accordance with the six variables specified in the PIECES analysis method. The following are the results of the analysis that carried out by researchers on the accounting information system of UD. Rizka Jaya.

1. Performance Analysis

   According to Al Fatta (2007), performance is the ability to service efficiently and professionally so that it can help achieve company goals. Performance is closely relate to the determination of the management of tasks and responsibilities of human resources and the accuracy of time use (Dewantoro, 2019).

   Management of accounts payable at UD. Rizka Jaya still uses the conventional system. Receivables recorded in an envelope with a credit card on the front page, where each envelope used for one customer, then proof of receivable documents such as sales invoices and payment receipts are included in the envelope as supporting evidence. When the admin checks the receivables that are due, the admin will record one by one from the credit card. Checking time for receivables that have matured was not done periodically, but only when the admin has time slack. This system also applies to debt management, where each proof of debt document such as purchase invoice and proof of payment entered into a folder per each supplier.

   The existing accounts payable management system has not been able to provide substantial benefits in managing accounts payable. Because with this system there is no periodic check of accounts payable. Therefore, it often happens that the collection of receivables or payment of debt exceeds the due date. Then with the existing system, it has not had an impact on time efficiency. Because with the number of customers and suppliers totaling 68 and the absence of a recapitulation of accounts payable, when checking accounts payable the admin needs to record one by one from the customer card and the folder containing the debt documents. In addition, this happens continuously when checking accounts payable.

2. Information Analysis

   According to Al Fatta (2007), information is a system evaluation variable through the accuracy and accuracy of the information produced by the accounting information system so that it can be useful in the company's operational processes.

   In the system implemented by UD. Rizka Jaya has not produced adequate quality information. The system cannot provide information on accounts payable that can be process by parties with an interest in the company. The system also cannot produce quality information for use in the company's strategic decision-making process. In addition, there is no validation in the accounts payable accounting information system, so it cannot be monitored for parts or users who input and access data. This makes the resulting information inaccurate and can be distort. Only the debt proof document has complete validation. Based on this analysis, it is necessary to have a system that can store large data and can be access quickly.

3. Economic Analysis

   According to Al Fatta (2007), this analysis focuses on the benefits that will be obtained in the application of the applied accounting information system. The thing to pay attention to is the cost issued by the company and the benefits derived from implementing the system.

   Accounts payable accounting information system that exists at UD. Rizka Jaya does not require significant costs. You only need to pay for the purchase of envelopes and folders, so that the costs incurred by UD. Rizka Jaya are minimal. However, the perceived benefits of the system are also less than optimal. Therefore, it is time for UD. Rizka Jaya budgeted funds to improve the accounts payable accounting information system. In addition, UD. Rizka Jaya also needs to consider from an economic point of view whether the system that is comparable between the costs incurred and the benefits.

4. Control Analysis

   According to Al Fatta (2007), the application of Accounting Information Systems certainly cannot be separate from the company's internal control. This is emphasize on the ability of the system to ensure the security of the information produced and ensure efficient internal control.

Some of the controls carried out by UD. Rizka Jaya with a manual system, among others, the cashier is fully own by the owner, so that transactions related to payment of accounts payable are fully held by the owner. Admin is only allow to manage data and documents. This has a weakness when the owner is unable to attend the store, the cashier must be handle by someone who is trusted by the owner. In terms of security, the efforts made by UD. Rizka Jaya in the form of a lock in a drawer where money is stored, as well as CCTV to monitor every activity in the store. In addition, in serving credit sales transactions and credit purchases, the owner minimizes financial transactions in cash (cash), but maximizes financial transactions by transfer.

5. Efficiency Analysis

   According to Al Fatta (2007), efficiency relates to the use of resources and how to managed resources to produce the maximum output in order to achieve the company goals and minimize waste of the company. At UD. Rizka Jaya's resources have been conditioned to the maximum according to needs. The number of computers in the company adjusted to the number of users, this aims to minimize irresponsible parties who can misuse computers to retrieve data. However, there is no system fits the company's needs, so the output cannot meet the company's information needs. In addition, a part have double responsibilities and authorities such as the owner who doubles as a cashier, where the responsibility should be delegated to the finance department or cashier. Also the responsibility and authority of the admin who is also responsible as a salesperson.

6. Analysis of Services (Services)

   Service analysis focuses on the influence of systems and resources in the company in serving consumers (Dewantoro, 2019). However, in the case study of the accounts payable accounting information system at UD. Rizka Jaya, in addition to service to customers, also focuses on service to suppliers. In serving accounts payable transactions, the existing system at UD. Rizka Jaya has been able to accommodate his needs. Because every existing debt has been recorded on each envelope and folder. It takes a long time if the customer or supplier wants to know how much the outstanding debt or receivable value is, the system has not been able to display the data quickly, so this makes the supplier or customer wait a long time.

Based on the results of data processing through PIECES analysis on the accounts payable accounting information system applied to UD. Rizka Jaya, showed that the accounting information system of UD. Rizka Jaya, based on six PIECES analysis variables, has shortcomings in six variables at once, especially on the variables of performance, information, control and efficiency. Therefore, it is necessary to make improvements to the accounting information system and the human resources involved.

D. Evaluation of Accounts Receivable Information System based on the results of PIECES Analysis

Based on the results of the PIECES analysis above, it can be seen that the accounts payable accounting information system implemented by UD. Rizka Jaya has weaknesses from the six aspects of the PIECES analysis assessment variable. This is due to the accounting information system, which is still managed conventionally without the help of computers or similar devices. Therefore, it is recommend UD. Rizka Jaya needs to create a computer-based accounts payable accounting information system so that it can improve system performance, efficiency, and control. This is in line with the opinion of Kelton et al (2010) which states that the rapid development of information technology will have a positive and significant impact on the company, where it can be known if the company has an adequate information system. In addition, a well-designed Accounting Information System will provide more value for a company such as improving the quality and reducing costs of products and services, increasing efficiency, sharing knowledge, increasing supply chain efficiency and effectiveness, improving internal control structures and assist the decision-making process (Romney & Steinbart, 2018). Therefore, information technology is an important thing for the company and it is time for UD. Rizka Jaya to improve its accounting information system to support the achievement of company goals.

IV. CONCLUSION

Based on the results of the analysis using the PIECES method, the accounts payable accounting information system applied to UD. Rizka Jaya is not in accordance with all existing aspects. Both in the framework of performance, information, economy, control, efficiency, and service. This is due to the absence of a computerized accounting information system, and the utilization of existing human resources is less than optimal. Thus causing the value of the debt ratio of UD. Rizka Jaya is low and the average value of collection of receivables and payment of debts is overdue. It is recommend that in the future UD. Rizka Jaya can improve the accounts payable accounting information system, in order to support the achievement of company goals.

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