

## BILLING RISK HANDLING BASED ON ECONOMIC LEARNING MATERIAL DEVELOPMENT MODEL USING FMEA AND RCA METHODS

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### Abstract

This study aims to describe the Billing Risk Handling-Based Economic Learning Material Development Model Using the FMEA and RCA Methods. The design and research approach in this study is quantitative where quantitative research is a data collection technique that is answered objectively in strengthening the questionnaire. The results of the study show that: (1) The model for developing economic learning materials can be done using Project Based Learning. Where this model prioritizes project-based economic learning. The project in question is to use the FMEA and RCA methods in the company. (2) SOPs in the company have been prepared properly, from 7 days before the due date to more than 60 days late. However, the field conditions that occurred were not by the existing SOP, resulting in various problems. (3) Factors that become obstacles in the billing process include: it is difficult to contact corporations, which results in unscheduled payments and miss communication with clients. (4) Efforts to improve performance in the billing process are carried out by adding a computerized system, setting procedural operational standards, making KPIs (key performance indicators) on billing, making initial agreements with clients regarding late fees and offering early payments, making billing priority lists, and periodically billing blasts via WA.

### Keywords

Learning development, account receivable collection, FMEA, and RCA methods



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## INTRODUCTION

The systemization of Social Science learning materials is very important in at the learning process both at the Junior High School and High School levels. Including social sciences in the field of Economics. Where the scope of study of economic learning materials can become more complex such as management, accounting, tax, and development economics studies (Kosasih, 2021). Good learning materials must be in accordance with the Graduate Competency Standards (SKL) and Content Standards (SI) regulated by the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia. Learning materials must also be in line with the vision and mission of the school which is further developed by the learning objectives (Sudjimat, 2022). The design of the development of learning materials should also pay attention to internal and external factors. For example, internal factors are the psychological conditions of students and classrooms. Then external factors include the forward orientation of learning outcomes in the field of job market needs, school vision and mission, and community needs. This is in addition to the primary regulations regulated in the preparation of teaching materials such as suitability (relevance), accuracy (consistency), and adequacy (adequacy) (Nyihana, 2021). The learning material should include three elements of knowledge, skills, and attitudes. So that the design of learning material development can be oriented towards these three elements.

The importance of the design of developing economic learning materials can refer to the SKL and SI determined by the Ministry of Education and Culture of the Republic of Indonesia (Ni'mah, 2021). For example, the development of learning materials that are oriented toward the economic aspects of management in the company (Wahyudi, 2022). Where management economics is the main topic that must be known by students at the High School level, especially those who enter the Social Sciences department. Learning material topics can be developed with an introduction to company management. With the aim that after the implementation of learning students can know the management of the company. Starting from Human Resources management, financing management, facilities and infrastructure management, quality management, and public relations management.

Of the company's management, financing management is considered to have an important value compared to other management. So that teachers can develop learning designs on the topic of financing management well. For example, with Project Based Learning (PjBL) (Dianawati, 2022). What this means is that the company's financing management materials can be projected on an

activity that is beneficial to students. For example, by Handling Billing Risks Using the FMEA and RCA Methods. With the hope that students will be able to study critically and apply these methods to miniature companies. This is considered very important in order to prepare the knowledge and skills of post-school students.

One of the service sectors is transportation, transportation infrastructure is an integral part of national development. The development of the transportation sector will directly reflect the growth of ongoing economic development (Palilu, 2018). Transport is one of the highly dynamically developing links in the distribution network of the movement of goods and people, both in political, economic and socio-cultural development, but also in defense and security. It plays a supporting, facilitating and supporting role in all areas of life. Essentially it is the process by which goods, people and services move. The migration process is the process by which a person conducts economic activities.

The growth of the transportation sector will reflect economic growth directly so that transportation has an important and strategic role (Amin, 2017). This is because the existence of adequate transportation infrastructure can facilitate mobility. In addition, as a stimulus for investors to invest, so that economic activity becomes smooth. The better a transportation network, the better the accessibility so that economic activities between regions are also growing (Kartiasih, 2019).

The value and growth of the transportation sector in Indonesia from 2010 to 2021 shows that during 2011-2019, the national transportation and warehousing sector grew by an average of 7.31% per year. The highest growth reached 8.49% in 2017 and the lowest was 6.38% in 2019. However, in 2020 it decreased by 15.05% due to Covid-19 which caused restrictions on social activities to break the chain of transmission of the corona virus (Katadata , 2022).

PT. Bayu Buana Travel.Tbk which is a travel agent company in Indonesia and was established in 1972. PT. Bayu Buana Travel. Tbk serves bookings of tourist tickets, hotels, travel packages (Tour) both domestically and internationally, travel documents, travel insurance and car rental (rentcar) online and offline. Currently the company has problems with billing which is quite large.

The percentage of receivables has fluctuated in 2018-2021. From 2018 to 2019 there has been an increase in outstanding due to the large number of new corporates. Likewise, from 2019 to 2020 there will also be an increase due to the impact of the Covid-19 pandemic which limits people's mobility. In 2021 there will be a good decline in numbers, because the receivables collection process

can be controlled properly.

Some of the existing invoices were delayed for more than 30 days and even up to 180 days from the 15 to 30 day term of payment given by Bayu Buana. In addition, there is also a delay in sending invoices for more than 7 days. So this causes outstanding receivables at PT. Bayu Buana Travel.Tbk. This research will use the FMEA and RCA methods so that it can find out the root causes of problems that occur at PT. Bayu Buana Travel. Tbk. Using the Failure Mode and Effect Analysis (FMEA) and Root Cause Analysis methods. The function of the FMEA itself is to identify existing risks by giving weight based on the RPN value obtained based on the severity, occurrence and detection values (Anggraini et al, 2020). And in the process-based RCA approach, the aim is to determine the root of the problem and develop a new strategy to be able to survive in developing its business (Utama and Syairudin, 2020). Therefore the purpose of this study is to examine more deeply related to the handling of billing risk using the FMEA and RCA methods at PT Bayu Buana Travel Tbk.

## **FINDINGS AND DISCUSSION**

### **Findings**

That the learning material for management economics in this study is to use Project Based Learning (PjBL). Learners are projected in financing management, especially billing within companies with the use of FMEA and RCA methods. In its application, learners can project the method on a miniature company. The billing stub learning materials using the FMEA and RCA methods are in accordance with the Graduate Competency Standards and Student Standards at the High School level. More concretely, it is simulated on PT Bayu Buana Travel Tbk. This is in accordance with the independent learning curriculum policy that students can carry out learning in industrial places.

PT Bayu Buana Travel Tbk is a service company with 50 corporations that are active in making purchases at the company. The billing process for clients is carried out by looking at the due date or maturity on the invoice and checking related to the suitability of the invoice. The collection team looks at the client's system where the invoice is approaching due. Two days before the due date, usually the collection will send an email to the corporate only for a reminder that the bill will be due. In addition, the collection process and actions carried out by PT Bayu Buana Travel vary according to the length of time the receivable is due by making telephone calls, sending emails to

visiting consumers. However, the results of the interviews that have been conducted state that the constraining factors in carrying out the billing process are that the corporation is difficult to contact, ahead of the due date there is a revision of the invoice, the lack of completeness of purchasing documents so that it is rejected by the finance client. In detail, these factors will be described through the Failure Mode and Effect Analysis (FMEA) method

**Table 1.** FMEA Analysis

No	Cause of Failure	Severity Rating	Occurance Rating	Detection Rating	Risk Priority Number
1	Occurrence of debt past due	8	8	2	128
2	There is damage to the financial cash flow of the company	7	9	2	126
3	Late bill payment incident	8	7	2	112
4	There is a delay in the process of payment to other clients	6	6	3	108
5	There was a delay in payment	7	7	2	98
6	The occurrence of loss to the company	8	6	2	96
7	There is uncontrollable debt	8	4	3	96
8	Occurrence of lack of supervision on the payment process	8	6	2	96
9	The occurrence of uncollectible debt	7	6	2	84
10	There is an inappropriate payment	7	4	3	84
11	There are uncollectible debts	7	4	3	84
12	Purchase documents are incomplete	7	4	3	84
13	Invoice delivery delays	7	4	3	84
14	Loss of purchase documents	8	5	2	80
15	There is an incorrect payment with the invoice	6	4	3	72
16	There is such a large outstanding rate	7	5	2	70

Based on the data from the FMEA (Failure Mode and Effect Analysis) analysis, the RPN (Risk Priority Number) values are obtained from the largest to the smallest. The largest RPN value is obtained in the cause of failure "Occurrence of overdue debts" with a value of 128. So, from the results of the largest RPN (Risk Priority Number) value, improvements are then made with the aim of reducing these problems. The proposed improvements that can be made to carry out the repair process based on the results of the FMEA analysis (Failure Mode and Effect Analysis) are as follows: 1). Provide terms that are agreed upon by both parties before giving debt to the client, which includes fines in the event of a delay 2). Monitoring through software to find out information on debts that are due and nominal, so that collection teams can collect them, 3). Employees who handle debt should know the characteristics of clients, so they can analyze whether the client can pay debts

on time or overdue.

Then the cause of the delay in the PT Bayu Buana Tbk billing process from the 16 events that have been analyzed, there is one problem that has the highest value. The stage of using RCA is the 5 why system which is done by repeating the question that begins with "why?" five times to find the root cause of the delay in the billing process. In this case root cause analysis (RCA) will analyze the main problem based on the Failure Mode and Effect Analysis (FMEA), that is, with an RPN value above the critical value. The problem is "The occurrence of debt past due". The root causes of delays in the billing process based on the results of the root cause analysis (RCA) method are shown in the following analysis steps:

#### Step 1 : Problem Definition

The existence of debts that are past due is not necessarily due to errors from external parties (clients or vendors), but these errors also occur due to negligence on the part of PT Bayu Buana Tbk's internal parties.

#### Step 2 : Data Collection

Based on the interview results, there are five causes of overdue debt as follows: 1). Late delivery of invoices due to revisions: invoices that are late in delivery on average more than 5 times within one month, 2). The age of the invoice continues since the issuance of the invoice: The age of the invoice continues until the due date but the debt has not been paid because there is no initial binding agreement, 3). Clients who underestimate the maturity of debt: the client feels there is no penalty for late payments (example: for example at PT X only 3 bills), 4). Insufficient collection team in billing: there is no target collection team in billing so that within one month the collection team bills more than 3 times to the same client, and 5) Billing is done by email 3 times, then telephone, and billing directly to the client.

Lack of follow-up and checking periodically with clients: there is no priority in billing so billing is done evenly regardless of how long the client is late in paying

#### Step 3 : Identify the Cause of the Problem

At this stage identification of the causes of the problem is described in detail through fishbone analysis.

#### Step 4 : Solution Implementation

The solutions that can be carried out in accordance with the key performance indicators of a company include: a). Have targets. Namely what target to achieve and the time needed to reach that

target. And b). Has a threshold value (threshold). That is to distinguish between the target value with the actual value.

## **Discussion**

The results of the research above found that PT. Bayu Buana Tbk SOP in the company has been carried out properly, starting from 7 days before the due date until more than 60 days late. However, the field conditions that occurred were not in accordance with the existing SOP, resulting in various problems as analyzed by the FMEA and RCA methods. FMEA (Failure Mode and Effect Analysis) is a structured procedure for identifying and avoiding as many errors as possible. FMEA is used to identify the cause and root cause of quality issues. Failure modes include design flaws or defects, conditions outside the applicable range, or modifications to the product that cause the product to malfunction. The results of the FMEA (Failure Mode and Effect Analysis) analysis obtained the RPN (Risk Priority Number) values from the largest to the smallest. The largest RPN value is obtained in the cause of failure "Occurrence of overdue debts" with a value of 128. So, from the results of the largest RPN (Risk Priority Number) value, improvements are then made with the aim of reducing these problems. These critical risks will be analyzed further as a first step in risk management actions. This condition is important for input for PT. Bayu Buana Tbk to be more disciplined in sending invoices. The results of the FMEA are then drawn using RCA analysis to find out the root of the problem and find suggestions for improvements to the problems that arise. Root Cause Analysis (RCA) is a logical structure that defines what event causes an unwanted/expected event to occur. The structure of Root Cause Analysis will explain how unwanted events are caused by failures at the lower level both individually and together. In the course of the payment and billing process there is still a high outstanding. This can happen for several reasons, including:

a). The invoice is tucked away in Bayu buana and is not sent, while the TOP system has been running since the invoice was created

b). Invoice Delivery was delayed, due to incomplete document support in terms of billing, while the TOP system has continued to run since the invoice was made

d). The invoice is lost in the Client, so the Finance client does not know the bill, and knows when the Collection section reminds that the invoice is outstanding, so Bayu Buana reprints the invoice

e). The invoice has been revised because the value or description does not match the order, so the Bayu Buana admin revises it and sends it back so it takes the TOP

This billing process can occur due to an invoice that has passed the TOP of the contract that has been determined and has not been paid, so the collection team does the billing. This condition can occur due to several things that can be seen from the external and internal. The external factors include the replacement of the HR team in finance, the existence of monthly payment budget restrictions, the finance team having difficulty getting directors' signatures regarding vendor payments. Meanwhile, internal factors include late collection of invoices by PT staff. Bayu Buana, the completion of billing support documents which is quite time-consuming, and the physical delivery of invoices is hampered by the messenger, so that it takes more time if it does not match the delivery route. The steps that can be taken by the company to overcome these problems include the following:

1. Sales (Ticketing) Section after Issued tickets or hotels, immediately inputs into the system on the same day or a maximum of 1 week later
2. The Admin section immediately creates an invoice if the system has been input by the sales team, a maximum of 3 working days from the input date from the sales team
3. Billing Section, immediately complete supporting documents such as Tax Invoices and check the completeness of the previous invoice sent a maximum of 2 working days after the invoice is made from the admin team
4. The messenger must have delivered the invoice within a maximum of 3 days from the time the billing team tidied up the invoice
5. Collection, remind h-7 before the TOP is due to process the invoice so that it is paid immediately.

Seeing the conditions above, PT. Bayu Buana needs to evaluate by improving the performance of internal HR in order to reduce errors that occur so that they do not hinder the outstanding billing process, and so that they do not interfere with the company's cash flow. This is important to do in the hope that there are no invoices that are Outstanding or are past due but have not been paid. Then the order will not be disturbed by the Credit Limit that has been specified in the contract letter.



## CONCLUSION

The conclusion of the study shows that: (1) The model for developing economic learning materials can be done using Project Based Learning. Where this model prioritizes project-based economic learning. The project in question is to use the FMEA and RCA methods in the company. (2) SOPs in the company have been prepared properly, from 7 days before the due date to more than 60 days late. However, the field conditions that occurred were not by the existing SOP, resulting in various problems. (3) Factors that become obstacles in the billing process include: it is difficult to contact corporations, which results in unscheduled payments and miss communication with clients. (4) Efforts to improve performance in the billing process are carried out by adding a computerized system, setting procedural operational standards, making KPIs (key performance indicators) on billing, making initial agreements with clients regarding late fees and offering early payments, making billing priority lists, and periodically billing blasts via WA.

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