THE DEPLOYMENT OF REVENUE CYCLE ACCOUNTING INFORMATION SYSTEM IN THE SERVICE BUSINESSES OWNED BY THE REGIONAL GOVERNMENT OF WEST NUSA TENGGARA PROVINCE

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Abstract— Based on Law Number 25/2009 on Public Services, the West Nusa Tenggara Government established Wisma NTB. However, the lack of interest from the government to stay at Wisma NTB while they are in Jakarta is the main cause of the inability of the NTB Liaison Agency to reach its local revenue target. In connection with the reason and the latest technological development, information systems are urgently needed by the agency to assist its operational and decision-making activities. This study aims to determine the current income cycle provided at Wisma NTB, to evaluate the effectiveness and efficiency of the ongoing cycle, and to determine whether or not to develop the available system. The research methods used for data compilation consisted of field observations, interviews, and literature studies. The system development method used is Extreme Programming (XP), software development procedures launched through practical principles and techniques. Meanwhile, the internal control evaluation applies COSO. The results reveal the prevailing control system has been proper and in line with prevailing environmental control and monitoring standards. However, weaknesses can be found in control, risk assessment, information, and communication activities. The elements are related to technology because the current income cycle worked less than optimal. Thus, it is necessary to develop the system. The developments include the provision of a room reservation system, a payment gateway system, and a system for recording online transactions so such transactions can be accessed anytime, anywhere.

Keywords: accounting information system, income cycles, service business, room reservations, local government

Abstrak— Sebagai bentuk pengamalan Undang-Undang Nomor 25 Tahun 2009 tentang Pelayanan Publik, Pemerintah Provinsi Nusa Tenggara Barat berusaha memberikan pelayanan publik melalui keberadaan Wisma NTB. Namun kurangnya minat pegawai dan pejabat menginap di Wisma NTB saat perjalanan dinas ke Jakarta menjadi penyebab utama tidak mampunya Badan Penghubung Provinsi NTB mencapai target pendapatan asli daerah. Sehubungan dengan itu serta perkembangan teknologi yang terus mengalami perubahan dan kemajuan, sistem informasi sangat dibutuhkan oleh instansi untuk membantu kegiatan operasional dan pengambilan keputusan. Penelitian ini bertujuan untuk mengetahui sistem informasi akuntansi siklus pendapatan yang sedang berjalan pada Wisma NTB, mengevaluasi efektifitas dan efisiensi sistem informasi akuntansi siklus pendapatan yang sedang berjalan serta untuk mengetahui perlu tidaknya dilakukan pengembangan terhadap sistem. Metode penelitian yang dilakukan dalam penyusunan data terdiri atas observasi lapangan, wawancara, dan studi pustaka. Metode pengembangan sistem yang digunakan adalah EXtreme Programming (XP), yaitu pengembangan perangkat lunak melalui berbagai prinsip dan teknik praktis pengembangan perangkat lunak. Sedangkan metode evaluasi pengendalian internal yang dilakukan menggunakan COSO (Committee Of Sponsoring Organizations). Hasil penelitian menunjukan penerapan sistem pengendalian di Wisma NTB sudah dijalankan dengan baik dan sesuai dari segi pengendalian lingkungan dan monitoring. Namun masih terdapat kelemahan pada aktivitas pengendalian, penilaian resiko serta informasi dan komunikasi. Ketiga unsur tersebut erat kaitannya dengan teknologi, Karena kurang optimalnya Sistem Informasi Akuntansi siklus pendapatan yang ada saat ini, maka diperlukan pengembangan pada sistem. Pengembangan tersebut antara lain pada sistem pemesanan

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kamar, sistem pembayaran dengan metode payment gateway, serta sistem pencatatan transaksi yang dilakukan secara online sehingga dapat diakses kapanpun dimanapun.

Kata Kunci: *sistem informasi akuntansi, siklus pendapatan, penerimaan kas, usaha jasa, pemesanan kamar, pemerintah daerah.*

INTRODUCTION

Based on the 2019 Ministry of Communication and Information Technology's Performance Report, the development of digital technology has driven Indonesia's economic growth from conventional to digital[1]. The Indonesian economy has also experienced a shift from an economy focused on commodities to service-based economic activities. The dynamics of this digital global era have also led to new ways to take advantage of technological changes, especially digital in several sectors, which have emerged as a solution to overcoming inefficiencies[2]. To encourage the growth of the digital economy, the government is required to carry out a transformation in providing better public services to the society by utilizing digital technology. One form of service provided by the West Nusa Tenggara Provincial Liaison Agency in Jakarta to Officials, Provincial Government Employees, Leaders, and Members of the West Nusa Tenggara Provincial DPRD who carry out official duties to Jakarta is through the Wisma NTB facility located on Jl. Garut No.5 Menteng, Central Jakarta. As a form of practicing Law Number 25 of 2009[3] on Public Services, the West Nusa Tenggara Provincial Government strives to provide the best public services to all stakeholders and the wider community through the existence of this Wisma NTB [4].

In connection with the foregoing as well as technological developments that continue to experience changes and advances, at this time information systems are needed by an agency to assist its operational activities[5] and assist agencies in making decisions or policies based on the information obtained. One of the information systems that play an important role in operational activities is the accounting information system[6].

One of the cycles in the accounting information system is the income cycle. The revenue cycle consists of sales, accounts receivable, and cash receipts[7]. The revenue cycle itself is a direct exchange of end products and services into cash in one transaction between buyers and sellers[7]. Thus, a series of business activities and related information processing activities are repeated by providing goods and services to customers and collecting cash as payment for these sales[8].

Based on the identification of the problems mentioned above, the objectives of this study are as follows: To determine the current income cycle accounting information system at Wisma NTB, to evaluate the effectiveness and efficiency[9] of the income cycle accounting information system at Wisma NTB which is currently running and to find out whether or not it is necessary to develop an ongoing income cycle accounting information system at Wisma NTB[4].

Table 1. The following Research Literature summarizes a review of previous researches on Accounting Information System Development which are used as the references for the development of the research conducted by the researchers.

Table 1. Research Problems

Research Problems (RP1)		Literature Supports
RP 1	The income cycle accounting information system at Wisma NTB was recorded manually	Nowadays' increasingly tough competition forces all companies to integrate more sophisticated technology to support all of their activities. Along with current technological developments, the use of computers is a must to expedite the companies' business activities. [10]
		Sales accounting information system puts its concerns on how the company organization can plan, coordinate, master, or control various sales activities carried out by the organization. [11]
		Without the presence of the accounting reports, managers and supervisors cannot monitor the company's financial position which is very useful to track the company's development and to determine the company's policies which shall be adopted in the future. [12]

RP 2	The income cycle accounting information system at Wisma NTB is not yet effective and efficient	Every business organization always does its best to meet its information demand. The companies maximize their technological resources because they need relevant, fast, timely, and accurate information that reflects the company's physical condition to assist them in planning, coordinating, and controlling their operations. [10]
		Adequate application of information will support effective internal control, resulting in the effective information required by management to support their decision-making process. [11]
		Every business organization always does its best to meet its information demand. The companies maximize their technological resources because they need relevant, fast, timely, and accurate information that reflects the company's physical condition to assist them in planning, coordinating, and controlling their operations. [10]
RP 3	No development has been made to the ongoing income cycle accounting information system at Wisma NTB	The purpose of the sales accounting information system is to create strong controls in a situation where no one unit can complete a transaction without involving other people's responsibilities. [11]
		A computerized accounting information system connected to the head office implements company activities well controlled even though some weaknesses in internal control can still be recorded. [13]
		Nowadays' increasingly tough competition forces all companies to integrate more sophisticated technology to support all of their activities. Along with current technological developments, the use of computers is a must to expedite the companies' business activities[10].

Table 1 explains some of the problems that exist in Wisma NTB, so it is necessary to develop an accounting information system especially for the existing income system in Wisma NTB. There are a lot of things that need to be prepared so that the purpose of building a system can work by the desired reality.

MATERIALS AND METHODS

The system development method approach used by researchers is one of the agile methods, namely Extreme Programming *(XP)*. The Extreme Programming (XP) method according to Prabowo (2018) is a software engineering process that tends to approach an object-oriented approach and the goal of this method is a team formed on a small to medium scale and this method is also suitable if the team is faced with changing requirements - very fast change. Extreme Programming is known as a method or technical how-to, how a technical team develops software efficiently through various practical principles and techniques of software development. Extreme Programming (XP) was chosen because the software to be made is not too complex and is classified as small-scale software and also requires less development time[9].

Extreme Programming (XP) was chosen because the software that will be built is not too complex and can be classified into small-scale software. Furthermore, the software also requires less development time[12]. There are four stages [14] in the Extreme Programming method, namely:

1. *Planning*

The XP methodology approach at the planning stage is the first step in system development where in this stage several planning activities are carried out, namely identifying problems, analyzing needs to determine the schedule for implementing system development. In this stage, the initial needs of the user are collected or in XP it is called user stories. This is necessary so that developers understand the content business, system output requirements, and the main features of the software being developed[15].

2. *Design*

The design stage is where modeling activities are carried out starting from system modeling, architectural modeling to database modeling. System and architecture modeling uses Unified Modeling Language (UML) diagrams while database modeling uses Entity-Relationship Diagrams (ERD). The design of the system in this study is described by the UML model in the form of use case diagrams, activity diagrams, class diagrams, and sequence diagrams. XP design still prioritizes the principle of Keep it Simple (KIS). The design here is a representation of the system to make it easier for developers to build the system[16].

3.   *Coding*

This stage is an activity of implementing modeling that has been made into a user interface using a programming language. At this stage, an Income Cycle Accounting Information System is built which is the object of research. The system is built based on designs that have been made in the previous stage. The programming language used is Hypertext Preprocessor (PHP) and for database management systems using MySQL software[17].

4.   *Testing*

The final stage is carried out after the coding is complete, then the testing stage is carried out on the system to find out what errors arise when the application is running and find out whether the system built is by user needs. The test method used in this stage is the BlackBox testing method, where tests are carried out on several input forms, whether they are running according to their respective functions[9].

RESULTS AND DISCUSSION

Based on the system analysis, the results of the observation and interview methods show that the current income cycle accounting information system is not yet optimal. It is said that it is not optimal because the data processing in the financial statements has not been integrated directly with the income process at Wisma NTB, so the two processes that should have been carried out simultaneously in one system had to be carried out twice on a separate system.

As a whole, promotional activities and room reservations at Wisma NTB take place manually. Even proof of room rental is only a receipt written manually. This is a weakness because in addition to being ineffective [18]. This is a weakness because, in addition to being ineffective and inefficient, proof of the transaction can also be fabricated[13] so that the overnight civil servants cannot be held accountable. Figure 1. below is the Flowchart for Room Reservation Transactions, Current System Procedures.

Figure 1. Flowchart of Room Reservation Transactions, Current System Procedures

A.   Planning

Flowcharts can develop an understanding of how a process is carried out. To illustrate the development of the proposed Income Cycle Accounting Information System, a flowchart is made which can be seen in Figure 2. The proposed Income Cycle Accounting Information System Flowchart is as follows:
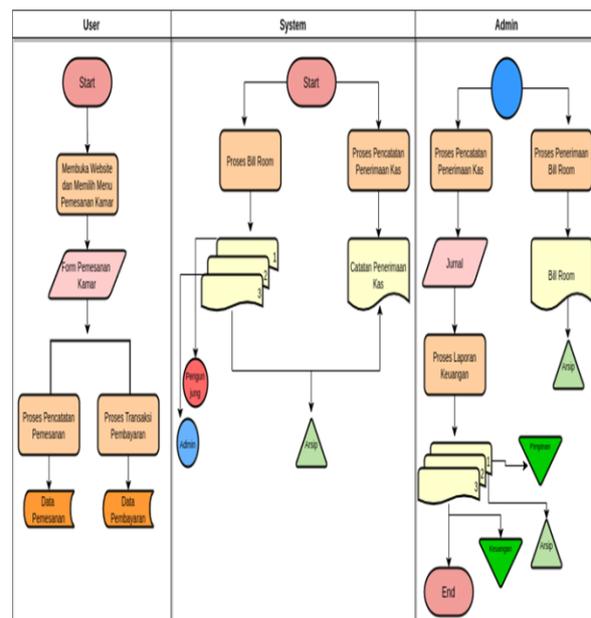

Figure 2. The Proposed Revenue Cycle Accounting Information System Flowchart

B. Design

1. System Modeling Design

The use case diagram describes an interaction between one or more actors and the system to be created. Use case diagrams are used to find out what functions are in a system and who has the right to use these functions. Figure 3. below is the Use Case Diagram of the Proposed System at Wisma NTB
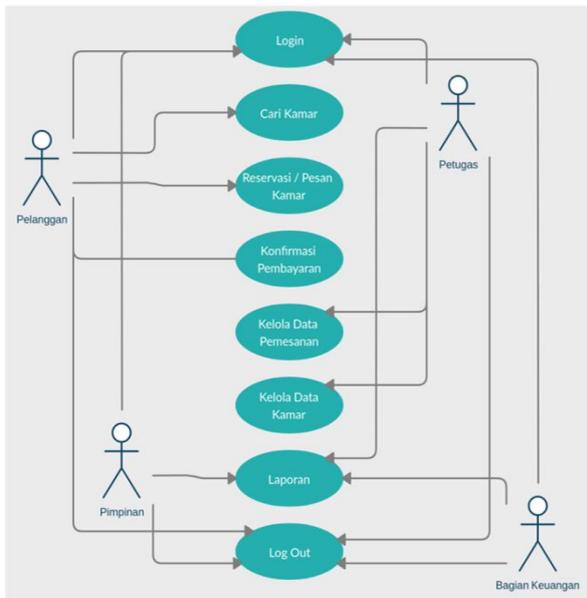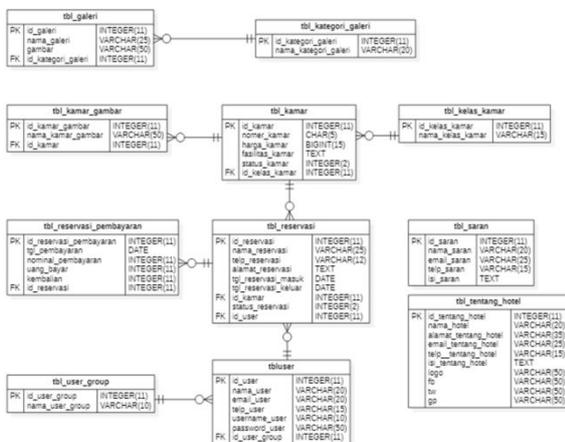

Figure 3. Use Case Diagram of the Proposed System at Wisma NTB

2. Database Design

Entity Relationship Diagram (ERD) is a diagram used to design a database to describe related data in a database. Figure 4 below is the ERD on the Proposed System at Wisma NTB:

Gambar 4. ERD on the Proposed System at Wisma NTB

In general, after the ERD design is completed, the next step is to physically design the database, namely making tables, indexes while still considering performance.

3. User Interface Design

a. The Main Page of the System

Figure 5. The Main Page of Wisma NTB Income Cycle Accounting Information System is a page that functions as the homepage, the initial display that displays the overall profile of the website. The Main Menu consists of the home menu, the room list menu, the about us menu, the complaints and advice menu, the gallery menu, and then the login/sign up menu.
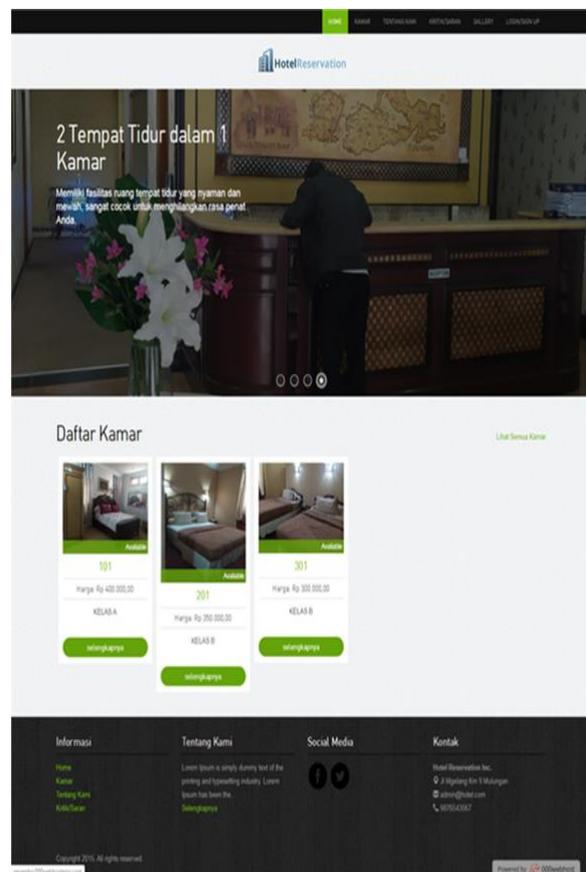

Figure 5. The Main Page of Wisma NTB Income Cycle Accounting Information System

b. The Room List Page

Figure 6. The Room List Page of Wisma NTB Income Cycle Accounting Information System below is a layer capture of the Room List Page of the proposed Wisma NTB Income Cycle Accounting Information System. On this page, users can see the details of the room to be booked.
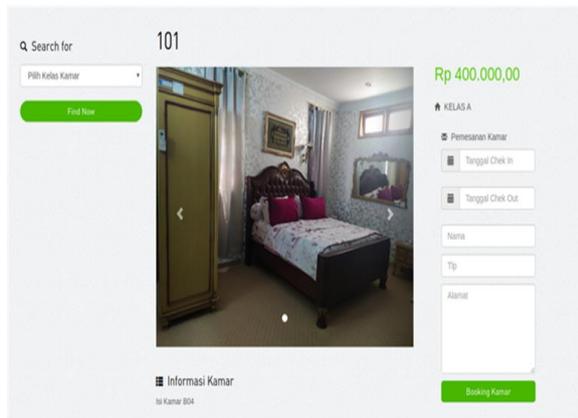
Figure 6. The Room List Page of Wisma NTB Income Cycle Accounting Information System

c. The Administrator Page

Figure 7. The Main Page of Wisma NTB Income Cycle Accounting Information System Administrator below is a screenshot of the layer Main Page Administrator of the proposed Wisma NTB Income Cycle Accounting Information System. On this page, users at the administrator level manage the system that has been designed.
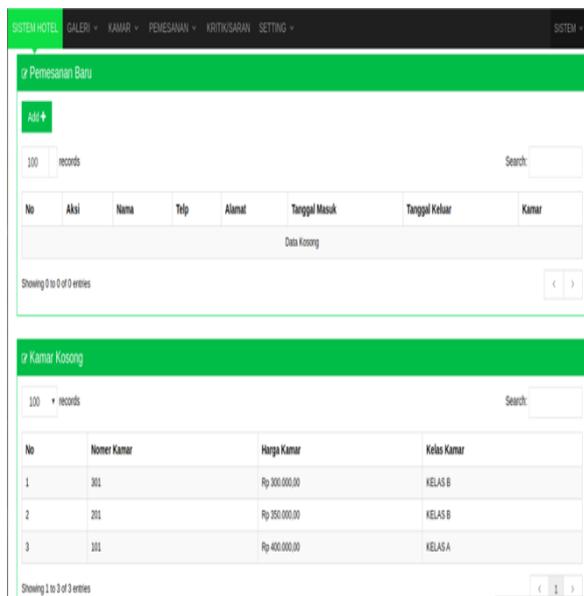

Figure 7. The Main Page of Wisma NTB Income Cycle Accounting Information System Administrator

d. The Payment Page

Figure 8. The following page for the Payment System of Wisma NTB Income Cycle Accounting Information System is a screenshot of the payment page layer of the proposed Wisma NTB Income Cycle Accounting Information System. On this page, the users complete the room booking transaction and make a payment.
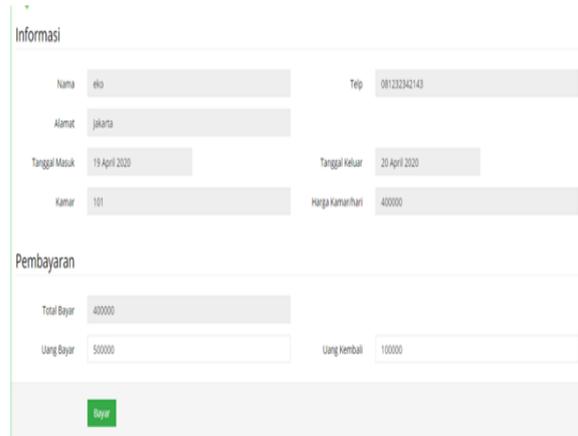

Figure 8. The Payment Page of Wisma NTB Income Cycle Accounting Information System

e. The Financial Report Page

Figure 9. The following page of the Financial Report Accounting Information System of Wisma NTB Income Cycle is a layer capture of the Financial Report Page of the proposed Wisma NTB Income Cycle Accounting Information System. On this page, users at the administrator and leadership levels can get information related to the financial reports recorded at Wisma NTB.
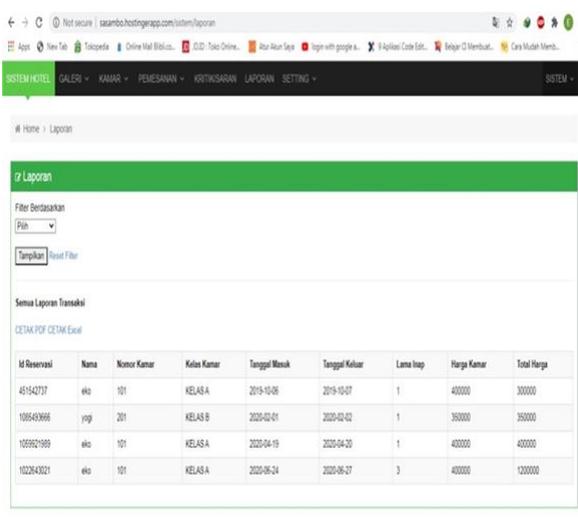

Figure 9. The Financial Report Page of Wisma NTB Income Cycle Accounting Information System

f. The Financial Reports Graph Page

Figure 10. The Graph Page of Financial Reports on the Income Cycle Accounting Information System of Wisma NTB. The following is a screenshot of the page of the Graph of Financial Reports of the proposed Income Cycle Accounting Information System of Wisma NTB. On this page, users at the administrator or leader level can view financial reports in graphical form.
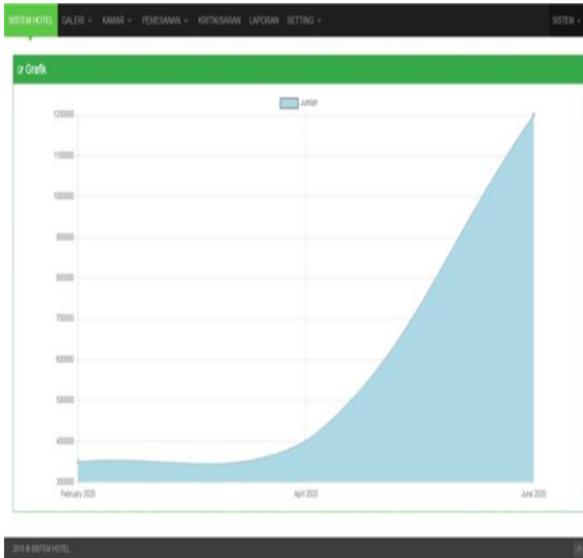
Figure 10. Graph Page of Financial Report on the Accounting Information System for the Income Cycle of Wisma NTB

g.   The Financial Statement Page

Figure 11. The Monthly Financial Statement Page on the Income Cycle Accounting Information System of Wisma NTB is a layer capture of the Financial Statement page of the proposed Income Cycle Accounting Information System of Wisma NTB. On this page, the downloaded report results can then display the required Financial Statement data. Financial Statements can be obtained by day, month, or year.
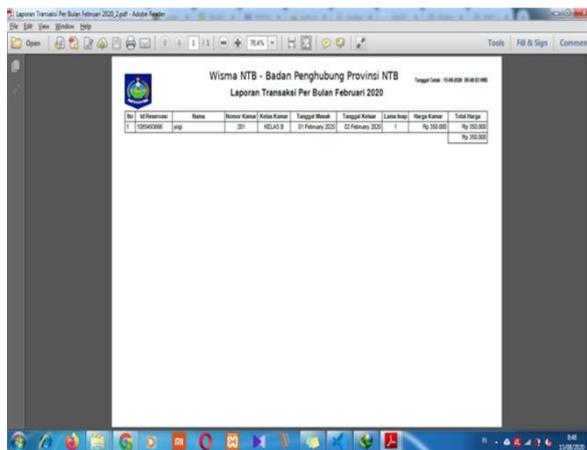

Figure 11. The Page of Financial Statement on Wisma NTB Income Cycle Accounting Information System

C.   Testing

The technique of evaluating the effectiveness and efficiency of the Income Cycle at Wisma NTB is based on the COSO theory:

One of the components of policies and procedures that are designed and implemented to achieve internal control objectives is the control environment. Table 2. Results of the Control Environment Evaluation. The following is a table of results of the evaluation of the control environment at Wisma NTB:

Table 2. Results of the Control Environment Evaluation

No	COSO Theory	Wisma NTB	Evaluation	Result
1	Control Environment: Integrity, Ethical Values, Commitment, Organizational Structure	Every employee has good integrity values, has a spirit of responsibility, and is oriented towards public service	Has been carried out properly by their respective duties and responsibilities.	Matched

An agency or company must be aware of and manage the risks it faces so that the organization can run harmoniously. Table 3. Results of the Evaluation of Risk Assessment Elements below is a table that describes the results of the evaluation of risk assessments at Wisma NTB:

Table 3 Evaluation Results of Risk Assessment Elements

No	COSO Theory	Wisma NTB	Evaluation	Result
2	Risk Assessment: Based on activities in the cash receipt process	Physical matching of cash that is in the cashier every day, there is evidence of each transaction	The existence of calculations, matching, and reporting from the cashier to the cash storage department. However, everything is still done manually, transactions directly at the guesthouse (Wisma).	Not yet matched

Activity control is a policy and/or procedure required to deal with existing risks. Table 4. Evaluation Results for Activity Control. The following are the results of an evaluation of activity control at Wisma NTB:

Table 4. Evaluation Results for Activity Control

No	COSO Theory	Wisma NTB	Evaluation	Result
3	Control Activities: The level of control over the entity, transactions, and information technology	Transactions are by existing SOPs, but the use of technology is still minimal	The cashier and room reservations are not computerized	Not yet matched

With the existence of information and communication systems, it is possible to obtain and exchange the information needed to carry out and manage the operational activities of the agency. Table 5. The following results of the evaluation of information and communication elements are the current results of an evaluation of the use of the existing information and communication system at Wisma NTB:

Table 5. Evaluation Results of Information and Communication Elements

No	COSO Theory	Wisma NTB	Evaluation	Result
4	Information and Communication: Identity, understand, analyze, record, and report information exchange	Information can only be obtained by requesting data from the Finance and Treasury Division	Limited information access	Not yet matched

The whole process must be monitored, and evaluated. Some changes shall be made when necessary. Table 6. Evaluation Results of Monitoring/Supervising Elements. Hereinbelow are the results of the evaluation of the current monitoring and/or supervising process at Wisma NTB, to check whether the system has been run appropriately or not:

Table 6. Evaluation Results of Monitoring/Supervisoring Elements

No	COSO Theory	Wisma NTB	Evaluation	Result
5	Monitoring and Supervising	Every month checking and evaluating cash and bookkeeping are carried out	Each division is always monitored based on the information and every month a cash check is carried out	Matched

Based on the evaluation results from table 2 to table 5 above, it can be seen that the application of the internal control system implemented at Wisma NTB is according to the theory put forward by COSO (Committee Of Sponsoring Organizations), where according to the theory applied by COSO in the implementation of the control system at Wisma NTB has been implemented properly and by environmental control and monitoring. However, there are still weaknesses or discordance with control activities, risk assessment as well as information and communication. These three elements are closely related to technology, the cashier/receptionist has not used the User Computing system. Customers also cannot access information related to inventory and room bookings in real-time online. Based on the risk assessment, financial data manipulation is likely to occur with the current system. Then in terms of information and communication, it is limited to space and time, so that access in the decision-making process and policymaking can be delayed.

CONCLUSION

The Accounting Information System designed at Wisma NTB was made through several processes, namely planning, designing, coding, implementing, and testing. Based on the results of the research that has been done, it can be concluded that the current income cycle information system at Wisma NTB is currently running semi-computerized. Where the room reservation process is done manually while the recording of the transaction is via a computer. The current income cycle information system at Wisma NTB is said to be ineffective and inefficient because the separate room reservation and transaction recording system is not optimal for prospective customers and also for leaders in determining policies and making decisions. Due to the less than optimal income cycle Accounting Information System that is currently available at Wisma NTB, it is necessary to develop the system. These developments include a room reservation system that is done online through a website, a payment system with a payment gateway method, and a system for recording transactions made online through the website so that it can be accessed anytime, anywhere. The weakness of this system, among others, is the need to add several features to support interaction between users and administrators such as real-time chat features, besides that it still needs to be refined in terms of

accounting reporting such as adding expense features, not just income features.

Suggestions

Based on the findings of problems in the process of making this Accounting Information System, the following suggestions can be drawn first, for further research it is expected to apply a different institution as a comparison. Second, Regarding the income cycle understudy, subsystems other than the sales subsystem and cash receipts subsystem can be used. For the future development of this Accounting Information System, further, development is still needed, such as adding more features and functions to the system.

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