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Development of Souvenir Production Transaction Processing System

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Development of Souvenir Production Transaction Processing System

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Abstract. This research aims to design a souvenir production transaction processing system for the craftsmen in North Sulawesi. The craftsmen make very simple recordings about souvenir production transactions and use documents that are not in accordance with the generally accepted accounting practices. This research uses qualitative method. The data is collected through interviews, observations, documents and literatures studies. The research stages are conducted in preliminary studies, data collection, data analyzed and system design. The design of system is built from chart of account, accounting cycle and documents as input and get processed in accounting recording. The outputs are financial statements. The system design provides benefits for the craftsmen in assessing the financial performance and getting financing from bank.

1. Introduction

Souvenirs that visually or conceptually refer to authentic cultural and historical elements claim to contain the essence of a culture or geography [1]. It means the culture and geographical position of an area affect the shape of a souvenir. The shape of a souvenir depends on the material culture that represent souvenir such as ethnic crafts or mass-manufactured items [2]. In North Sulawesi, coconuts' become the material culture of the souvenir.

North Sulawesi is known as *Nyiur Melambai* region because of the many coconut trees in this area. As one of tourist destinations in Indonesia, souvenir craftsmen in North Sulawesi make souvenirs of raw material of coconut wood and shell. Souvenirs as local products represent the experience of tourism in North Sulawesi [3]. Souvenirs can be an important elements of a tourist experience with most visitors bringing back mementos and souvenirs as evidence [4]. To produce souvenirs of the basic ingredients of coconut, in the context of accounting, takes engineering technology, information design and financial control [5].

Accounting is an information system that measures business activity, processes data onto reports and communicates results to decision makers [6]. These decision makers need accounting information in making decisions that may affect business activities. Therefore, accounting is required in the design of information and financial control.

Related to information design and financial control, the craftsmen have problems in souvenir production transaction processing system. The craftsmen in producing souvenirs make very simple recording of souvenir production transactions. They use documents that are not in accordance with the accounting practices of a business. They also have difficulty in the preparation of financial statements. These conditions burden the craftsmen in calculating the cost of production, evaluating its financial performance and make it difficult for craftsmen to obtain financing from the bank. Based on the existing problem, this research aims to design a souvenir production transaction processing system with raw



material of coconut wood and shell for the souvenir craftsmen in North Sulawesi. Development in this research title is defined as the design of a souvenir production transaction processing system from a simple or traditional processing system to an accounting-based processing system. The design of an accounting-based transaction processing system is intended to help the craftsmen overcome various obstacles and strengthen the sustainability of their business.

2. Literature review

2.1. *What is the meaning of transaction processing system?*

The system is a series of components that are coordinated to achieve a set of goals [7]. The system has the characteristics as a component, process or activity to coordinate all the components involved in a system, goals, and the final goal to be achieved from the coordination activities of these components. A group of elements dependent on each other and together achieve a goal is a system [8]. It can be said that a system has components or elements which are associated with a certain process to produce output.

Transaction processing system is a system that produces transaction to produce reports, include input, process and output [9]. It captures, enters, stores, retrieves and processes the relevant details of business activities and generates the information and documents necessary for running the business [10]. One of the transactions that needs to be processed by a business unit is the transaction which is relevant to the business unit finance (accounting transactions). A transaction processing system is required for business units to record, store and process transactions that occur (accounting data) to produce accounting information and documents that are required by the interest parties. The interest parties in the wider meaning are the stakeholders and in the narrow meaning are the shareholders. Accounting information in financial statements are useful for interest parties in decision-making.

2.2. *Accounting transaction*

2.2.1. *Cost accounting and financial accounting.* As an information system [6], accounting requires financial data in the form of accounting transactions. Accounting transaction is a business activity that affects the financial of a business unit and becomes the data required in carrying out the accounting process. Accounting can be divided into several types such as financial accounting, management accounting (including cost accounting), taxation accounting, government accounting, forensic accounting, and social accounting [11]. Souvenir production transaction processing system is within the scope of cost accounting and financial accounting.

Cost accounting is the accounting related to the determination of the cost of a product manufactured to fulfill orders from the buyer or to become a merchandise inventory for sale [12]. Cost accounting is concerned with the process to monitor and to control costs [11]. Cost accounting is applied by a manufacturing company or business unit that produces goods for sale. To produce goods for sale, the costs must be determined. For determining the costs, the characteristics of the market (demand) and business itself need to be considered by the company [13].

Financial accounting is a process to generate accounting information for external stakeholders in the form of financial statements [11, 14]. Therefore the financial accounting process is related to recordkeeping. Recordkeeping includes the process of selecting transaction data or events affecting assets, liabilities, equity, income and expenses (elements of financial statements).

The financial statements generally and the calculation of cost of production specifically become the output of souvenir production transaction processing system. Cost accounting and financial accounting become the basis of the transaction processing system. Said to be the basic because talking about souvenir production transaction processing system, financial accounting knowledge is used to record, store and process business transactions that occur including souvenir production transaction. Processing souvenir production transaction requires cost accounting knowledge related to production cost.

2.2.2. *Production cost and cost of goods manufactured.* In manufacturing companies, the company's operations are divided into production and non-production functions [14]. Non-production functions include marketing and administration functions. When the company runs the production function then

the transactions that occur related to the production costs which are raw material costs, direct labor costs and factory overhead costs. Another classification of production cost is direct and indirect cost [15]. Direct costs are those costs that can be specifically and exclusively assigned identified with the particular cost object, while the indirect cost cannot. Direct costs include raw material costs and direct labor costs. Indirect cost include factory overhead cost. Raw material costs are the costs incurred to purchase the raw materials used to produce the goods. Direct labor costs are the costs incurred to pay the workers directly related with products produced. Factory overhead costs are costs incurred to produce goods other than raw material and direct labor costs [16]

There are 2 methods in determining the production costs namely full costing method and variable or direct costing method [14]. The variable costing method does not include fixed overhead costs as a product cost element. The fixed overhead costs are charged as period costs in determining the periodic profit or loss. The use of variable costing method is focused on the preparation of internal financial statements to evaluate management performance. Direct costing or variable costing is not a generally accepted accounting procedure for external reporting purposes [17] Conversely, according to the full or absorption costing method, production costs include all components of cost to make the product. Production costs according to this method include raw material costs, direct labor costs, fixed overhead and variable overhead costs. The use of the full costing method is permitted for external reporting and tax reporting. The characteristics of the business need to be considered by the management in making a choice to use both methods. Each of them has advantages and disadvantages in its application [13]

Calculation of production cost with both methods becomes the basis for the company in calculating the cost of goods manufactured. Cost of goods manufactured is calculated based on beginning work in process inventory plus the cost of production and reduced by ending work in process inventory. Beginning finished goods inventory plus the cost of goods manufactured and reduced by ending finished goods inventory become cost of goods sold. By knowing the cost of goods sold, the operating profit or loss can be calculated.

2.3. The accounting cycle of manufacturing companies

In general, the business enterprise's accounting cycle starts from the transaction of the company's business activities. Based on the evidence of the transaction, the company will record transactions that occur into the journal and posted to the general ledger. If a particular account needs to be explained in more detail then the company can use the subsidiary ledgers. The balance of each account in the ledger is transferred to the trial balance. After the trial balance is prepared, company makes an adjusting entry. Once the adjusted trial balance is prepared, the company presents the financial statements [18].

To begin an accounting cycle, business units need to develop chart of account to be used in the accounting process. Account is the name representing a transaction. After the chart of account is arranged then the transactions that occur can be recorded in the journal. The information contained in the journal includes the date of the transaction, a description explaining the account in debit and in credit and the amount of rupiah. The ledger is arranged for each account by listing transaction date, description, amount in debit and amount on credit and account balance. The trial balance contains the transaction date, account name and balance of each account. The adjusting journal is intended to match the numbers in the trial balance to the actual conditions.

The cycle of the activities of a manufacturing company begins with processing raw materials in the production process and the production process is in the form of finished or ready-to-sell products [16]. Basically, the accounting cycle for a manufacturing company is the same as the general accounting cycle for a business enterprise. The only difference is that there are production costs incurred by manufacturing company.

2.4. Financial reporting

Financial reporting is a process for generating financial statements. It can be said that the financial statements are the product of the financial reporting process [19]. The financial statements based on International Accounting Standards (IAS) 1 consist of statement of financial position, statement of

comprehensive income, statement of changes in equity, statement of cash flows and notes to financial statements [20]. According to financial accounting standards of entities without public accountability, in Indonesia namely SAK ETAP, the financial statements consist of statement of balance sheet, statement of income, statement of changes in equity, statement of cash flow and notes to the financial statement [21].

The statement of balance sheet contains information about the position of assets, liabilities and equity at the end of a certain period. The statement of income contains information about the revenue and expenses recognized in one period. The statement of changes in equity contains information on the amount of capital at the end of a certain period. The statement of cash flow contains information on cash sources from operating activities, investment activities and financing activities. The notes to the financial statements contain detailed information about the accounts presented in the financial statements such as the specific accounting policies used in the preparation of the financial statements.

2.5. Financial performance

The research in cost management practices and manufacturing firm's performance found that direct material cost, direct labor cost, production overhead cost and administration overhead cost have a positive significant relationship with firm's performance [22]. Cost management practices influence manufacturing firm's performance. The firm's performance looks through financial performance.

Financial performance is the relationship between income and expenses of the entity as presented in the income statement [21]. Earnings are often used as performance measures or as a basis for other measurements, such as return on investment or earnings per share. Earnings represent an increase in economic benefits during the reporting period in the form of cash inflows or increases in assets, or a decrease in liabilities resulting in an increase in equity that does not originate from the contribution of investors. Expenses are the decline in economic benefits during a reporting period in the form of cash outflows or decreases in assets, or the occurrence of liabilities resulting in a decrease in equity unrelated to the distribution to investors [21].

2.6. Credit analysis

Credit analysis is an evaluation of the company's feasibility to obtain credit based on the company's ability to meet its credit obligations [19]. This credit analysis focuses on risk. Measurement of risk is done through analysis of liquidity and solvency. Liquidity is the company's ability to generate cash in the short term to meet its obligations. In certain instances that may have been that a company was deemed to be liquid when it faced cash flow problems or that a company was not liquid when in fact it had sufficient cash flow resources [23].

Company with many transactions should care about their cash flow. Their analysis of liquidity needs to concern about cash flow. In small companies, it is enough to measure their liquidity by assessing the result of comparison between the total current assets with total current liabilities.

One of the fundamental indicators which has the capacity to emphasize the way in which the financial equilibrium, needed for the continuity of a company's activity is ensured, is represented by solvency [24]. Solvency is the company's long-term ability to pay off its long-term liabilities [19]. To perform credit analysis with analysis of liquidity and solvency requires financial statements.

3. Research method

This research was conducted on souvenir craftsmen using coconut wood and shell spread in North Sulawesi Province as the raw material. To achieve the purpose of this study, this research used qualitative method.

Qualitative research is a study that intends to understand the phenomenon of what is experienced by research subjects such as behavior, perception, motivation, actions etc., holistically [25]. In describing the existing phenomenon, qualitative research describes the phenomenon in the form of words and language, in a specific context that is natural and by utilizing various natural methods. In view of

qualitative research, the symptoms are holistic (thoroughly inseparable) so qualitative researchers will not specify the research only based on the research variables, but the overall social situation under study which includes the place and activities that interact synergistically [26].

This research uses primary and secondary data. The primary data are collected through interviews for the key informants. The key informants are used to obtain a broad and complete description about the souvenir production transaction processing system. In determining the key informants, this study used purposive sampling technique. Purposive sampling is a technique of sampling data sources with certain considerations such as the person who is considered to be the most know about ledgeable what researchers expect or may be the informant as a ruler that allows researchers to explore the objects or social situations encountered [26]. The key informants are the craftsmen of souvenir handicraft industry in Manado, Minahasa, Tomohon, Bitung, Southeast Minahasa, South Minahasa and North Minahasa. The data collected in interviews are about the craftsmen history, production process, accounting recording, accounting cycle, accounting documents, calculation of costs of goods manufactured and their financial statements.

The secondary data are collected through field observations, studies of documents and literatures. Field observations are conducted on the production place, to see their production system and inventory. In documents studies, this study is focused to find every document which is used in their production transaction processing system. The literature studies are used to explore the basic concepts and previous research of the souvenir production transaction processing system. The results of these literature studies were needed to elaborate the findings and build the system design.

The research stages are conducted in preliminary studies, data collection, data analyzed and system design. Preliminary studies are conducted through preliminary interviews. Interview results show that there was the absence of a good management system. That's why this research wants to bulid a souvenir production transaction processing system.

To build a system, the data is collected through interviews, observations, documents and literature studies. The collected data is presented in the data identification section. Data analysis is described in the discussion section. The obtained data are grouped and analyzed to prepare the chart of account, accounting cycle, documents, calculation of cost of goods manufactured and preparation of financial statements. The result of the analysis is resulted in a souvenir production transaction processing system. This system is disseminated to the craftsmen through Focus Group Discussion (FGD). FGD are conducted to re-confirm the findings with the craftsmen. The final formulation of the FGD results become the final result of the design of souvenir production transaction processing system.

4. Identification the being of souvenir production transaction processing system

Based on the data from the office of industry and trade of North Sulawesi province, the number of souvenirs craftsmen is 15 small and medium industries. They are spread in districts or cities in North Sulawesi.

From interviews results, this research found that in general most of the craftsmen started their business since 1988. This business is done from generation to generation. They produce in traditional way manually and the labor comes from their own homes. Along with the development of the existing business, they also started to develop. The development is shown by the use of machine in producing souvenirs, not just manually like before. In order to increase the skills of the craftsmen, the government has included several craftsmen in training in cities in Java such as Yogyakarta.

In running their business, some craftsmen only work seasonally. They produce when there are important events such as exhibitions. In addition, some craftsmen also open souvenir corner in shops, supermarkets, airports, post office and hotel or sell directly to souvenir shops.

From the interviews results, field observations and studies of documents, this study identified several matters relating to the transaction processing system used by the craftsmen as follows:

- The accounting records are still very simple. To illustrate the production activities, they use the whiteboard and table book. The information is recorded as the number of orders, the deadline for completion of the order, the purchase amount of raw materials with the use of auxiliary

materials. To determine the cost of the product, craftsmen tend to follow the market price of similar goods produced from outside Manado. They do not calculate the depreciation of equipment, the labor wages, equipment maintenance costs and the costs increase due to the use of facilities in the business place such as electricity costs.

- The absence of financial statements made by craftsmen. This becomes an obstacle for them in obtaining loans at the bank.
- The amount of production varies greatly as it depends on the order (not mass production).
- There is no work in process inventory because the souvenir production is based on order. The production process was stopped ahead of the christmas celebrations and resumed after the beginning of the year.
- The labor used is an acquaintance, a relative or a family member, and this is not counted labor costs.
- The mode of production generally uses the machine and some are done manually.
- The accounting cycle or accounting period agreed by the craftsmen is to use a calendar year starting from January and ending in December.
- The omzet was increasing due to the large market demand. The increase in demand is related to the increase of domestic and foreign tourist arrivals.

5. Discussion about the souvenirs production transaction processing system design

Souvenir craftsmen are part of small and medium industries. The accounting standards used in accounting for souvenir production transaction refer to SAK ETAP [8]. Considering the scope of business of the craftsmen, the souvenir production transaction processing system designed in this study is in the form of manual design. The system design is intended for business units to record, store and process transactions that occur (accounting data) so as to produce accounting information in financial statements. As already mentioned in the identification of the findings in the previous section, the craftsmen do not record well, do not store and do not process transactions that occur into accounting information in the financial statements. For that they need a souvenir production transaction processing system.

To design a system, it's need some components as inputs and get processed in accounting recording. The inputs are chart of account, accounting cycle and documents. The output of this system are financial statements. The system design is as seen in figure 1.

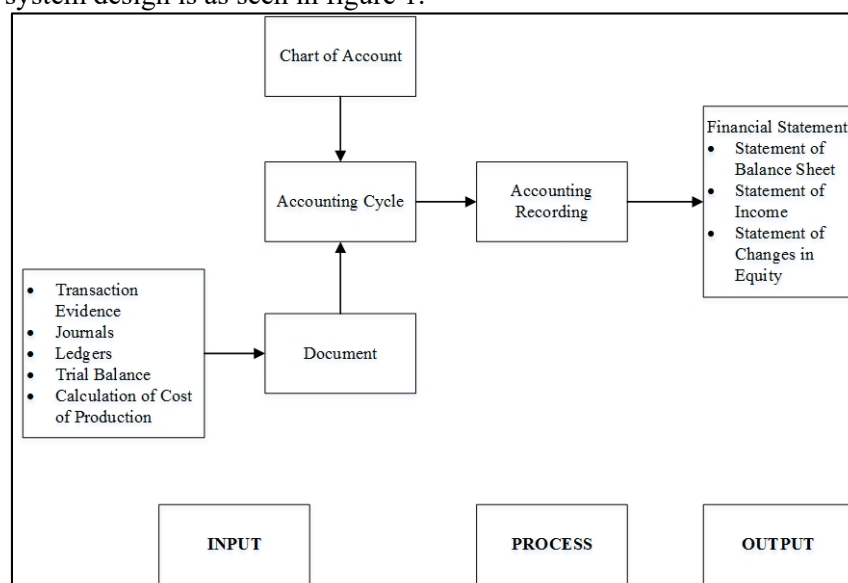


Figure 1. Souvenir Production Transaction Processing System Design

5.1. *Chart of account*

Souvenir production transaction processing system begins with arranging chart of account. The ledger accounts are classified on the basis of the arrangement and grouping of information presented in the balance sheet statement and income statement. The ledger account is divided into 6 groups and each group is subdivided into several groups. Each group is further divided into subgroups and each subgroups is divided into account types. The six groups are coded 1-6 ie assets, liabilities, equity, revenue, costs (expenses) and other income or expenses as well as profit and loss. The group of assets (1) is divided into current assets (11) and fixed assets (12). The group of liabilities (2) is divided into current liabilities (21) and longterm liabilities (22). There is no subgroups for equity (3). The groups of revenue (4) are divided into sales (41) and sales reduction (42). The group of costs or expenses (5) is divided into cost of goods sold (51), production cost (52), administration and general expenses (53) and marketing expenses (54). The group of other income or expenses as well as profit and loss is divided into interest expense (61) and profit and loss (62). The account types for all groups are cash (111), receivables (112), account receivables (113), inventory (114), cost of fixed assets (121), accumulated depreciation of fixed assets (122), account payables (211), bank longterm liabilities (221), equity (301), prive (302), sales (411), sales discount (421), sales returns (422), cost of goods sold-souvenir (511), raw material costs (521), direct labor costs (522), factory overhead costs (523), administrative and general expenses (531), marketing expenses (541), interest expenses (611) and profit and loss (621). For certain account types there are more specific account such as cash (1111), petty cash (1112), bank (1113), souvenir inventory (1141), raw material inventory (1142), indirect material inventory (1143), fuel and lubricant inventory (1144), paint and varnish inventory (1145), others material inventory (1146), land (1211), building (1212), machines (1213), equipment (1214), furniture and office equipment (1215), vehicles (1216), accumulated depreciation of building (1222), accumulated depreciation of machines (1223), accumulated depreciation of equipment (1224), accumulated depreciation of furniture and office equipment (1225), accumulated depreciation of vehicles (1226), raw material purchases (5211), factory overhead costs-electricity (5231), indirect labor (5232), factory overhead costs -depreciation of equipment (5233), factory overhead costs-repairs and maintenance equipment (5234), indirect materials (5235).

5.2. *Accounting cycle*

The accounting cycle of souvenir production business starts from the transaction evidence. The transaction that occurred is recorded in the journal and posted to the ledger. After that the craftsman needs to make a trial balance, adjusting journal and adjusted trial balance. Based on the adjusted trial balance, the craftsman prepare the financial statements in the form of balance sheet statement, income statement including calculation of cost of goods manufactured and changes in equity statement. After the financial statements are prepared, a closing journal, a closing balance sheet and a reverse journal should be made. It can be the craftsmen did not make closing journals, closing trial balance and reverse journal. It is possible if the craftsmen understand that the balance of the accounts in the balance sheet statement will be the beginning balance in the following period and the final balance of accounts in the income statement is not the beginning balance in the next period.

5.3. *Documents used in accounting cycle*

The documents used during the accounting cycle runs in the form of transaction evidence, journal books, ledgers and trial balance. But the transaction includes proof of souvenir order, proof of purchase, proof of sale, stock card, proof of cash receipt, proof of cash disbursement, record of material usage and record of employment wage. Proof of souvenir order contains data on order quantity, order completion date, product design and agreed price. The proof of purchase contains data about purchased goods, quantity and price. The proof of sales contains data on the quantity, type and price of the goods sold. The stock card can be used by the craftsman if it has many types and quantities of inventory. This card contains data about the quantity of incoming, outgoing (used) and balance items. The cash receipt contains data on the amount of money received and an explanation cash receipts transactions for

example down payment. Cash disbursement evidence contains data on the amount of money spent and explanations for cash disbursement transactions such as electricity and repairs expense. Record of materials usage contains data about the type of materials used and the quantity of used. The employment wage record contains data on the type of work performed, the quantity completed, the amount of wages and the time period of completion.

5.4. Calculation of cost of production

The cost of production is the cost of souvenir products. The calculation of the cost of production for souvenir craftsmen in North Sulawesi comes from the production cost component. The method of determining the production cost in this system design is the full costing method. This is done based on consideration of the craftsmen business scope and the purpose of preparation of financial statements. The preparation of financial statements by craftsmen is intended to assess financial performance and obtain financing from banks. The use of the full costing method is permitted for external reporting [15]. The full costing method does not separate the costs of variable costs and fixed costs because the separation is difficult to do and the result is only an estimate. Production cost in this method includes all cost components to make the product. The components of these costs are raw material costs, direct labor costs and factory overhead costs. The cost of raw materials is the value of the raw materials used. The cost of raw materials is calculated from the beginning inventory of raw materials plus the purchase of raw materials minus the ending inventory of raw materials.

In calculating the cost of production, the craftsmen used accounting period in one calendar year. The craftsmen in mid-December have stopped producing because they will celebrate Christmas. The production process begins again in the beginning of the following year. Therefore there is no inventory of work in process. The absence of work in process inventory is also indicated by the production method which is applied by the craftsmen that is based on the order. In the absence of work in process inventory, the production cost becomes the basis for calculating the cost of goods manufactured.

Based on the submission of the craftsmen, they mostly do not calculate the labor costs. They also do not take into account their skills. According to the concept of cost accounting, direct labor costs or wages are wages for workers directly involved in the souvenir production process whereas indirect labor costs are wages provided to those not directly involved in the production process. In producing souvenirs, the overhead costs include the cost of electricity, indirect labor, depreciation of equipment, as well as repairs and maintenance of equipment and the use of indirect materials.

5.5. Financial report

The financial statements are the end result of the accounting cycle. The craftsmen need to prepare financial statements so that they can know the financial position at the end of the period and the income achieved during one period. In addition, the financial statements prepared can also be used to obtain loans from the banks. The statement of balance sheet contains information about the assets, liabilities and equity as stated in the chart of account. The income statement based on the IAS 1 should contain comprehensive profit and loss calculation but in this research the researcher only designs the income statement based on SAK ETAP and adjusted to the craftsmen business scope. The income statement contains information about earnings over a period and costs incurred during one period. The composition of the income statement consists of revenues minus cost of goods sold to generate operating profit or loss. Cost of goods sold is calculated from the beginning souvenir inventory plus the cost of production and reduced by the ending souvenirs inventory. The equity change statement only provides an overview of the equity changes that occur and includes equity deposit, additional equity, personal retrieval as well as additions due to a profit or reduction due to a loss. The final balance of equity in the equity change statement becomes the equity balance in the statement of balance sheet. For cash flow statements and notes on financial statements may not be used because the craftsmen business scope are still small industry.

5.6. The Benefits of System Design

With the system, the craftsmen can report their finance in financial statements. These financial statements can be used by the craftsmen to evaluate their financial performance and get loan from the banks.

5.6.1. Evaluating the financial performance

With the unavailability of adequate accounting records on souvenir production efforts, the craftsmen cannot measure financial performance for a given period. Financial performance is measured on the basis of the income earned and the costs incurred to obtain income over a specified period. The financial performance is reflected in the income statement. The financial performance of souvenir production business needs to be measured. The craftsmen can see the growth of their business activities within a certain time frame from their financial performance. In addition, the measurement of financial performance can be used by the craftsmen to calculate the rate of return on their investment. That's why the craftsmen need to compile the income statement as the result of accounting recording.

5.6.2. Getting financing from bank

To expand their business, the craftsmen realize that they also need financial support from the bank for expand their business. In order to get a loan from bank, they need to submit a financial statement of their operations. The information contained in the financial statements provides the basis for the bank in analyzing the feasibility of souvenir production business. The results of the analysis become one of the requirements for granting credit. From the report of existing financial position, the liquidity analysis can be done by assessing the result of comparison between total current assets with total current liabilities. To analyze the level of solvency can be done by reviewing the results of comparison between total long-term liabilities with equity or total liabilities with total assets. Financial statements include statement of balance sheet (financial position) as the output of system design can help the craftsmen to get loan from bank.

6. Conclusion and limitation

Souvenir production transaction processing system has components or elements which is associated with the processing of production transactions to produce output. The elements in the form of chart of account, accounting cycle and documents include calculation of cost of production. Chart of account, documents and accounting cycle as inputs are used for accounting records. All components of this system interact in the process of accounting recording to generate financial statements. Therefore, the design of souvenir production transaction processing system is built from the components as input and get processed in accounting recording. The output is financial statements.

This system design was developed to assist souvenir craftsmen in calculating cost of production, preparation of financial statements, assessment of financial performance and get loan from bank. The development of system is adapted to the business scopes of souvenir craftsmen that are small and medium industries. It is expected that the design of this system can strengthen the business sustainability of souvenir craftsmen. The limitation of this study is that the results of this study can be applied for the assumption that the craftsmen have to have knowledge of cost accounting and financial accounting. To overcome this limitation, the craftsmen need to be trained and accompanied during the implementation of this system design. Therefore, this research gives space for the future research in the form of implementation and evaluation of souvenir production transaction processing system.

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