Flexible budget as a development tool for manufacturing industry

Orçamento flexível como ferramenta de desenvolvimento para a indústria de manufatura

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ABSTRACT

Budget is an estimated forecast of future incomes and expenditure for a certain period of time. Budget is usually prepared for regular time intervals such as monthly, quarterly, or annually. Budgets are prepared by the top management of the organization. This research identifies direct materials cost as the most appropriate base for flexible budgeting, and hence it is used as the activity of interest. Differential penalty costs for budget variances specified by the user determine an optimal ratio which is used in developing the flexible budget. In many manufacturing companies, plant costs such as depreciation, rent, etc, has a very large proportion of total costs, and these aspects tend to be considered as fixed costs. Salary costs also tend to be considered as fixed, because employees are generally guaranteed a basic salary for a working week of an agreed number of hours. As the appearance of growth on service industries, labour costs such as wages or fixed salaries and overheads place a major role on most of the costs of a business, and direct materials will have a relatively small value under total costs.

Keywords: flexible budget, cost control, evaluation budget, manufacturing company.
RESUMO
Orçamento é uma previsão estimada de receitas e despesas futuras para um determinado período de tempo. Geralmente, o orçamento é preparado para intervalos de tempo regulares, como mensalmente, trimestralmente ou anualmente. Os orçamentos são preparados pela alta gerência da organização. Esta pesquisa identifica o custo direto de materiais como a base mais apropriada para uma orçamentação flexível e, portanto, é usado como a atividade de interesse. Os custos de multas diferenciais para variações orçamentárias especificadas pelo usuário determinam uma proporção ideal que é usada no desenvolvimento do orçamento flexível. Em muitas empresas de manufatura, os custos de fábrica, como depreciação, aluguel etc., têm uma proporção muito grande dos custos totais, e esses aspectos tendem a ser considerados como custos fixos. Os custos salariais também tendem a ser considerados fixos, porque geralmente é garantido aos empregados um salário básico para uma semana de trabalho de um número acordado de horas. Como o aparecimento de crescimento nas indústrias de serviços, os custos da mão - de - obra, tais como salários ou salários fixos e despesas gerais, desempenham um papel importante na maior parte dos custos de uma empresa, e os materiais diretos terão um valor relativamente pequeno abaixo dos custos totais.

Palavras-chave: orçamento flexível, controle de custos, orçamento de avaliação, fabricação empresa.

1 INTRODUCTION
1.1 RESEARCH GAP

Budget is defined as estimated forecast of future incomes and expenditure for a period of time. Budget is made and prepared for certain regular time intervals such as monthly, quarterly, or annually. On the other hand, budgets are prepared by the top management of the company. The preparation of budget must be adjusted for any changes in assumptions or actual variations appear from operations. In this case, managers use flexible budgeting technique to deal with budgetary adjustments (Khan et al., 2021). Therefore, flexible operating budget provides detailed information about budgeted expenses (and revenues) at various levels of output.

In general, the goal of a company is to gain profit or profits the maximum. This of course requires planning and control systematic operations. One form of planning effort that can be done at the same time used as a control tool, especially for production costs, is the budget (Syah et al., 2021). Budgeting is a calculation method that can determine how a company will operate can develop well, with good budget calculations, then the cycle the company's economy can be fully controlled.

The use of the budget as a means of controlling production costs is very important feel the benefits. In the production cost budget there are costs such as costs raw materials,
labor costs, and factory overhead costs associated with supervision and control of production costs incurred by the company (Siregar et al., 2019). Budget very useful in the planning and control process because budgets are used as a benchmark for performance evaluation. Determine how to compare the amounts budgeted with actual results is the main consideration that must be made.

Without understanding the concepts and techniques for preparing a correct budget, companies will lose clear direction and the company will become unstable in management finance. Preparing a budget is important for a company. Budget prepared by management within a period of one year which will bring the company to desired conditions with estimated resources (Syahputra et al., 2021). According to Dileep G. Dhavale and Jayavel S. (1993), flexible budget describes the relationship between the products manufactured in a cellular manufacturing system and the stochastic nature of expenditures is developed. This research identifies direct materials cost as the most appropriate base for flexible budgeting, and hence it is used as the activity of interest. Differential penalty costs for budget variances determine an optimal ratio which is used in preparing the flexible budget. This research aims to analyze how flexible budgets are implemented in manufacturing companies in Indonesia. Furthermore, to see how the flexible budget implementation is prepared and also to evaluate the flexible budget which is implemented as a company internal control tool.

2 LITERATURE REVIEW

2.1 BUDGET

According to Koontz and O’ Donnell (2005) define, “Budgets are statements of anticipated results, in Financial terms as in revenue and expense and capital budgets or in non-financial terms as in budgets of direct labourhours, materials, physical sales volume, on units of production. The budget process is the combination of certain designed characteristics that varies across organizations (Harnovinsah et al., 2020). It is known as a set of control that includes planning, measurement and evaluation.

2.2 BUDGETARY CONTROL

Steps involved in budgetary control:
Step 1: Measure and establish actual position

Through financial statements, a company can measure the actual position of the firm. After the budget is prepared, the accounts under the budget are given certain codes. Therefore the income and expenditure are listed in accordance to this codes. This makes the measuring of the firm’s position easier.

Step 2: Comparison of actual position with budget position

After the first step of preparing the financial information about the actual position of the firm is finished, the actual realization of the company operation is compared with budgeted position in order to determine deviations.

Step 3: Calculating variances

The difference between the actual income and expenditure with the budgeted income and expenditure is known as “variance”. Variance analysis is crucial in the budgetary control process. Variances can be positive and negative. Negative variances is interpreted as a requirement in improvement of actual budget. While, positive variance leads to changes in budget as the budget income and expenses has been underestimated.

Step 4: Reasons for variances

There can be various reasons for variances between actual and budget position in firm. The identification of the reason for all the variances are crucial for the development of a company. Some reason for variances can be errors, delaying, profiling, unplanned changes, poor budgeting.

Step 5: Take action

When the causes of variances are identified, corrective actions need to be taken. Budgets can only be controlled with corrective measures or the whole process turns to be a waste. In budgetary control process, corrective actions are the main key.

2.3 FLEXIBLE BUDGET

A flexible budget is known to be one of the most powerful financial planning tool that analyze variations in activity levels or sales volumes, which is different from a static budget that remains the same regardless of real-world changes (Lubis et al., 2022). A flexible budget able to adjust and aligns with the real levels of activity. This adaptability
allows businesses to make more accurate performance evaluations and forecasts, fostering better decision-making processes.

According to Chartered Institute of Management Accountants (CIMA) (1997) “A flexible budget as a budget which, by recognizing the difference in behaviour between fixed and variable costs in relation to fluctuation in output, turnover or other variable factors such as number of employees, is designed to change appropriately with such fluctuations.” Flexible budgets are developed in accordance to changes in activity levels by adjusting budgeted figures through actual activity and offer a more accurate reflection of costs, expenses and revenues. This adaptability makes flexible budget to be valuable for dynamic environments and offer a better performance evaluation and resource allocation for companies.

A flexible budget is suitable for any level of activity. One of the benefits received from flexible budgets is the company able to create a budget in accordance to the actual level of production in order to give management a clearer and real picture of the company’s situation and condition. In other words, the analysis of flexible budget will compare the actual level of activity in order for the company to not only focus on the value of variances. This paper will discuss the importance of flexible budget analysis and the performance report. These will allow managers to budget the company production and overheads based on the level of production.

<table>
<thead>
<tr>
<th>Planning</th>
<th>Planning is one of the primary functions of management and how to achieve targets that should ensure the organisation’s overall strategic plan is achieved (R. P. Marple, 2002)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsibility</td>
<td>Budgets help allocate responsibility, and specify which managers control which costs (Braun, Tietz, Horrison, 2010: 475-615).</td>
</tr>
<tr>
<td>Integration</td>
<td>The process of preparing budgets should help ensure that the planned activities of one area of an organisation do not conflict with another (Renee T., 2015)</td>
</tr>
<tr>
<td>Motivation</td>
<td>If managers and employees are involved in setting the budget targets, this will increase their motivation in trying to achieve the targets. However, it is important that budget targets are felt to be achievable, otherwise they will serve to be demotivating (ACCA, 2015c: 218-239).</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Budgets allow trends in performance to be identified and investigated. For example, if actual performance is falling below budget, the reasons for the variance can be investigated, and action taken to correct the shortfall as necessary. In this respect, budgets act as a key strategic control, and they can be used for both financial control (eg sales, profits) and non-financial control (Samuel S., Caroline L., 2016).</td>
</tr>
<tr>
<td>Development</td>
<td>Budgeting for future growth opportunities ensures that companies have capital on hand when needing to make a quick decisions for expanding business operations.</td>
</tr>
</tbody>
</table>

Source: From Author
3 METHODOLOGY

This research was developed using an explanatory method with a descriptive analysis approach. Researchers tried to collect data related to information on planning and implementation of flexible budgets in manufacturing companies selected as research samples. Then analyze the concepts, theories and practices applied by the company, in order to obtain results and conclusions in the research.

3.1 SUBJECT AND OBJECT

The subject of this research is data related to budget planning implemented by the company under study. Meanwhile, the object of this research is manufacturing companies in Indonesia.

3.2 DATA COLLECTION TECHNIQUES

Researchers collect data by recording documents related to the object to be studied. Researchers do collecting theoretical data by reviewing various literature books and other library materials related to the problem being discussed.

3.3 TYPES AND DATA SOURCES

3.3.1 Data types

Based on its nature, the author uses two types of data as follows:

a. Quantitative Data, is data that can be calculated or data that can be in the form of numbers, in this case the data is the budget and actual overhead costs.

b. Qualitative Data, is data that cannot be calculated or data that is qualitative in nature, in the form of company development, organizational structure, and other data related to this writing.

3.3.2 Data source

The data that the author has collected is secondary data sourced from company documents, literature and articles relevant to the research object.
4. RESULT AND DISCUSSION

4.1 RESULT

4.1.1 Flexible budget preparation in manufacturing company

Every manufacturing company has a different type of flexible budget, which is supposed to be in accordance to the type of industry that the company run. The comparison of a fixed budget with the actual cost occurred from a different level of activity is crucial for control purposes. A flexible budget can be defined as a budget in which a company able to differentiate each cost behaviour patterns. The budget is designed to change as volumes of output varies. Flexible budgets should be used to determine the real costs and revenues of the actual level of activity. (Hajiyev & Adilli, 2020)

The first step of preparing the flexible budget is by determining the cost behaviour patterns, such as deciding whether costs are fixed, variable and semi-variable. Fixed costs are costs that are constant whether the level of activity increases or decreases. For example, salaries, rent fees, credit instalment, etc. The fixed costs are illustrated as below:

![Figure 1 Total Fixed Cost](source: Hajiyev & Adilli (2020))

Variable costs are the costs that changes in activity. As the level of activity increases, the variable costs will increase proportionately and vice versa. For example, fuel, direct material, and others. The variable costs can be illustrated as below:
Semi Variable Costs can be defined as the combination of both fixed costs and variable costs. This cost will remain fixed until a certain level of activity, however when exceeded they will become variable. For example, Hourly labour, repair and maintenance, telephone and electricity bills, employee compensation, and others. This type of cost can be illustrated as below:

The second step in the preparation of a flexible budget is to calculate the budget cost allowance for each cost item.

Budget cost allowance = Budgeted fixed cost + (number of unit X variable cost per unit) **

* nil variable cost
** nil fixed cost
In this case, semi variable costs are required splitting into their fixed and variable components in order to calculate the budget cost allowance. One of the methods to split semi variable costs is through high/low method.

4.1.2 Analyzation of fixed and variable cost: high low method

The high low method can be used as a quantitative method in manufacturing company to analyze total costs into the elements of fixed cost and variable cost. For example, if a manager analyses a two-month production period where the company produced 20 goods and 25 goods, respectively, with the company associated costs, the manager able to predict how much does it takes to produce 30 goods for the following month. This can help a manager to decide whether the amount of spendings is worth the cost of production for the current month. There are several steps needed to analyse fixed and variable cost through high low method.

Firstly, the management should select the highest activity level and the lowest activity level of costs from the previous periods. Secondly, the management will determine which total costs occurred during high activity level (p), total costs at low activity level (q), total units at high activity level (m), total units at low activity level (n). Lastly, to calculate the variable costs per unit (c). The formula to calculate variable costs per unit can be seen as follow:

\[ c = \frac{p - q}{m - n} \]

While the fixed costs (f) can be determined as follow:

\[ f = p - (q \times m) \]

For instance, Company X manufacturing and selling boots. The following figure represents the first quarter for the company and the steps to calculate the high low method. (Indeed, 2023)
The company identifies the highest and the lowest value of goods produced and the associated costs. For the above data, the highest goods produced are in February, which is 15,000 pairs of boots produced at $40,000. On the other hand, the lowest value is in January, with 10,000 pairs of boots produced at $30,000.

2. The next step is to calculate the variable cost per unit. In order to accomplish this, the company is using variable cost formula, which is:

$$\text{Variable Cost per Unit} = \frac{($40,000 - $30,000)}{(15,000 - 10,000)}$$

Variable Cost per Unit = ($10,000) / (5,000)

$$\text{Variable Cost per Unit} = $2.00$$

3. Once the company receives the variable cost per unit, total fixed cost can be calculated by using fixed cost formula.

$$\text{Total Fixed Cost} = $40,000 - ($2.00 \times 15,000)$$

Total Fixed Cost = $40,000 - $30,000

Total Fixed Cost = $10,000

4. By taking into account of the total fixed cost and the goal for April, the company able to find the total variable costs for April as well by using the information as follow,

$$\text{Total Variable Cost} = $2.00 \times 16,000$$

Total Variable Cost = $32,000

5. After discovering the total variable cost and the total fixed cost, the company able to calculate the predicted total cost of producing goods, which it accomplished with the below information,

$$\text{Total Cost} = $10,000 + $32,000$$

Total Cost = $42,000 for the predicted month of April
4.1.3 Flexible budget as a concept in performance evaluation of manufacturing company

Flexible budget can be used for a company to receive a better idea of how to control the variable overhead cost and fixed overhead cost. The budget is prepared by multiplying the actual level of activity by the cost formula for each of the variable cost categories.

For instance, Rick’s Hairstyling is a manufacturing company and a store that produces and sells hairstyling products, such as hairspray. Using the $1.20 per client-visit that buy hairspray, the total cost for producing this item should be $6,240 for 5,200 client-visits ($1.20 per client-visit X 5,200 client-visits). Since the actual cost for hairspray was $6,400, the unfavourable variance was $160. Same thing goes to client gratuities that produce as much as $1,500 unfavourable variance. However, the electricity bills for 5,200 client-visit, the company actual cost is below the budget, therefore the company receive $20 favourable variance. The analysis of fixed overhead costs also can be determined. Below is the company flexible budget performance report. (Emad, 2006)

![Figure 5 Rick’s Hairstyling Flexible Budget Performance Report](image)

By using the flexible budget approach, the company has a much better view of assessing whether overhead costs are under control. The analysis is challenging, however, companies that provide a variety of products and service should take flexible budgeting into consideration in order to operate efficiently and effectively.
4.2 DISCUSSION

From the result above, it can be seen that there are three important factors that a manufacturing company should take to measure the flexible budget company’s activities when the company produces a variety of products and services. (Emad, 2006)

1. The activity base and variable overhead costs must relate causally. Any changes in the activity base should cause, or at least be highly correlated with changes in the variable overhead costs of flexible budget. Ideally, the variable overhead costs in the flexible budget should vary in direct proportion to changes in the activity base. For instance, in a carpentry shop specializing in handmade wood furniture, the costs of miscellaneous supplies such as glue, wooden dowels, and sand paper can be expected to vary with the number of direct labour hours. Direct labour-hours would therefore be a good measure of activity to use in a flexible budget for the costs of the supplies.

2. The activity base should not be expressed in any currency. For instance, direct labour cost is usually a poor choice for an activity base in flexible budgets. Changes in wage rates affect the activity base but do not usually result in a proportionate change in overhead. For example, a company would not expect to see a 5% increase in the consumption of glue in a carpentry shop if the workers receive a 5% increase in pay. Therefore, it is normally best to use physical rather than financial measures of activity in flexible budgets.

3. The activity base should be simple and easily understood. A base that is not easily understood will probably result in misunderstanding. It is not easy to control costs if people don’t understand the reports or do not accept them as valid.

A flexible budget is updated throughout the year. It reflects changes in a company’s assumptions due to actual sales levels achieved, changes in costs or any other condition that affects how a company expect the following of the year.

The result above also shows several benefits that a manufacturing company can gain from the application of flexible budget, such as:

1. Allow for adjustments in which the information is updated and based on new information throughout the year.

2. Allow for more accurate projection of the following period.

3. Allow a company to alter plans in response to challenges.

According to ACCA (2015) It can be seen as well that flexible budget is prepared to plan or arrange for variations in the high or low level of activity set in the fixed budget.
However, since many cost items in modern industry are fixed costs, the value of flexible budgets in planning is dwindling.

1. In many manufacturing company, plant costs such as depreciation, rent, etc has a very large proportion of total costs, and these aspects tend to be considered as fixed costs.
2. Salary costs also tend to be considered as fixed, because employees are generally guaranteed a basic salary for a working week of an agreed number of hours.
3. As the appearance of growth on service industries, labour costs such as wages or fixed salaries and overheads place a major role on most of the costs of a business, and direct materials will have a relatively small value under total costs.

The application of flexible budgeting is theoretically straightforward. However, in practice there are a number of points that must be considered before the figures are considered as flexed, such as: (ACCA, 2015)

1. The separation of costs into fixed and variable elements is not always straightforward.
2. Fixed costs may behave in a step-line fashion as activity levels increase/decrease.
3. Account must be taken of the assumptions on which the original fixed budget was based. Such assumptions might include the constraint posed by limiting factors, the rate of inflation, judgements about future uncertainty and the demand for the organization's products.

A flexible budget may be needed at the planning stage to complement the master budget. The output may be budgeted at a number of different possible levels. During the period, the flexible budget may then be updated to the actual level of activity and the results are compared. As a result, flexible budgets assist management control by providing more dynamic and comparable information.

5 CONCLUSION

In general, the goal of a company is to gain profit or profits the maximum. This of course requires planning and control systematic operations. One form of planning effort that can be done at the same time used as a control tool, especially for production costs, is the budget.
The use of the budget as a means of controlling production costs is very important. In the production cost budget there are costs such as costs raw materials, labor costs, and factory overhead costs associated with supervision and control of production costs incurred by the company.

Companies must be able to design budgets appropriately in order to achieve maximum profits. In the implementation process, the company must also carry out an evaluation to see the effectiveness of the flexible budget that has been implemented previously. This is useful for improving and overcoming company budget problems.

This research can be a consideration and reference for manufacturing companies that are planning a flexible budget process for their company. However, researchers realize that this research is limited to collecting samples and data related to company budget plans. Researchers chose manufacturing companies in Indonesia as research samples. It is hoped that future researchers can develop further research, using a wider sample of companies.
REFERRENCES


