

The Role of the Activity-Based Budgeting Approach in Preparing Planning Budgets and Costs Control: An Applied Study in SDI Company

Nuha Safi Abd

Northern Technical University - Technical Institute Al-Dour

Abstract: The research aims to encourage the industrial sector to use modern costing methods as an activity-based budgeting approach, and the mechanism for using this approach in preparing planning budgets. In order for the industrial sector to be able to provide more accurate information on the activities cost it provides. As well as, tightening control over activities through Activity-based planning budgets. All this contributes to improving the services of this sector and reducing its costs. The researcher sought to achieve this goal by designing planning budgets based on activities in "The State Company for Drugs Industry and Medical Appliances/Samarra" (SDI Company) based on the financial reports and official records of the company collected as well as field visits and personal interviews with a number of officials in the management of this company.

The research also aims to demonstrate the importance of preparing budgets based on the activities that contribute to the planning and cost control process, as well as the extent of this company's commitment to the participation of all departments in preparing budgets. The research concluded that the preparation of planning budgets in the industrial sector in general and in SDI Company contributes to determining and limiting costs and preparing the budget for each activity. In addition, the detailed and analytical financial information provided by Activity-based budgeting about the activities contributes to imposing more accurate and better control over the cost. Moreover, this information facilitates the process of applying the activity-based budgeting system, because it is a planning and control tool that contributes to reducing costs.

Keywords: Budgets, Activity-Based Budgeting, Planning Budgets, Industrial Sector, SDI.

Introduction:

The contemporary business environment is shrouded by a set of rapid and continuous changes and variables, whose impact has been reflected on the companies operating in this environment, both internally and externally, and at the local and global levels. With the intensification of competition, companies need to find a set of means that help them to continue and achieve the planned goals. To achieve this, these companies adopt a set of competitive strategies, that are implemented at different levels in the companies, which aim behind them to achieve the lowest level of costs, if quality is maintained.

Planning budgets are one of the effective and important tools used by corporate management to implement their objectives, policies and programs and to show how they can exploit the economic resources available to them, through planning, coordination, decision-making, policy-making, control, and performance

evaluation. To achieve these functions requires the availability of a set of requirements, the most important of which is the clarity of objectives, taking into account all variables and surrounding conditions and their effects. As well as the use of sound scientific and practical methods for preparing, implementing and following up budgets.

The activity-based budgeting is one of the modern techniques in accounting, which is based on a set of principles and assumptions to eliminate activities that do not add value, while enhancing activities that add value. The concept of activity-based budgeting is associated with reducing costs, optimizing the use of available resources, and providing products with value from the customer's point of view. It is also one of the modern methods used in preparing planning budgets.

1. Research Methodology

1.1 The problem of research:

The rapid changes in the business environment, production technology, and information have been reflected in the traditional budgets, which have become insufficient to achieve the management's requirements and needs for appropriate information that enables it to make decisions in a more efficient and effective manner. This is what forced the industrial companies to keep abreast of these changes and resort to the use of modern techniques in preparing planning budgets that push towards improving their work mechanism and controlling costs in a way that achieves their goals of achieving growth and continuity compared to other companies. Through the foregoing, the research problem stems from the following questions:

1. Does SDI Company have the basic ingredients for preparing planning budgets based on activity-based budgeting?
2. What is the impact of SDI company's application of the activity-based budget system when preparing planning budgets for the purpose of cost control?
3. Is it possible to apply the activity-based planning budget to all the company's activities?

1.2 The importance of research:

The current research gains its importance from the importance of the variables under discussion and the subject it addresses, represented in the activity-based budget approach, which is relied upon in preparing planning budgets, in order to support and develop SDI company's financial performance through cost control, as the research aims to shed light on each of the following:

1. Activity-based budgeting approach and mechanisms for preparing planning budgets.
2. Determine the possibility of using the activity-based budgeting in preparing planning budgets and its impact on cost control.

1.3 The objectives of research:

The research aims at the following

1. Statement of the concept and objectives of activity-based budgeting.
2. Presentation of the elements of applying the activity-based budgeting approach.
3. Statement of the activity-based budgeting's role in planning and control.
4. Improving the method of preparing planning budgets by adopting the activity-based budgeting approach in a way that achieves the desired goals.

49	<p>ISSN 2576-5973 (online), Published by "Global Research Network LLC" under Volume: 6 Issue: 9 in Sep-2023 https://globalresearchnetwork.us/index.php/ajebm</p>
	<p>Copyright (c) 2023 Author (s). This is an open-access article distributed under the terms of Creative Commons Attribution License (CC BY).To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/</p>

1.4 The hypothesis of research:

The research is based on the hypothesis that:

1. SDI Company has the necessary ingredients that contribute to the preparation of planning budgets and cost control based on the activity-based budgeting approach.
2. Adopting the activity-based budgeting approach when preparing planning budgets leads to increased efficiency and effectiveness in the planning, control, and decision-making function.

2. Theoretical and conceptual framework of activity-based budgeting

2.1 The concept of activity-based budgeting:

One of the modern methods of preparing the budget is activity-based budgeting (ABB), which in turn is an extension of activity-based costing (ABC). The budget based on activities uses the relationship between the quantity of units produced and the activity required to produce these units to develop detailed estimates of the requirements or requirements of the activity of the proposed production plan. Developed in the mid-1980s by Kaplan & Cooper, activity-based budgeting is based on the activity-based costing method. Activity-based budgeting uses the relationship between the quantity of units produced and the activity required to produce these units in order to develop detailed estimates of activity requirements or the requirements of the proposed production plan (AL-Zubaidi, 2023: 40). According to this concept, the volume of products and services that will be provided in the coming period is estimated, the activities necessary for that are estimated, and then the cost of the resources needed to accomplish these activities is estimated (Blocher et al., 2010: 391).

Activity-based budgeting is defined as “an estimate of the expectations of the activities to be accomplished in the company through planning and controlling costs in order to come up with an effective budget that achieves the agreed strategic goals” (Antos & Brimson, 2009: 10).

The activity-based budgeting is the opposite of activity-based costing approach, where the cost flows according to the activity-based costing approach from top to bottom, that is, from resources to activities, products, services, and customers, while the cost flows according to the activity-based budgeting approach from bottom to top. In other words, activity-based budgeting focuses more on activity analysis than on material resources and sources. This helps the feedback process and the company's operations in analyzing its strategic goals. It also helps managers to understand and identify what work is expected to be accomplished and what investment will be obtained.

The activity-based budgeting can be defined as: (Al-Masoudi and Rasheed, 2021: 237-238).

1. A quantitative expression of the strategic plan and expected activities of the economic unit, based on cost calculation.
2. Determine the necessary resources, and accordingly, the cost of the planned activities is determined according to the target production volume.
3. An approach that reflects the management's prediction of the size of production and the resources needed to reach the strategic goals.

2.2 The importance of activity-based budgeting:

Budgeting based on activities has two basic importance, which are as follows: (Al-Dhahabi and Al-Qusous, 2009: 214)

50	ISSN 2576-5973 (online), Published by “Global Research Network LLC” under Volume: 6 Issue: 9 in Sep-2023 https://globalresearchnetwork.us/index.php/ajebm
	Copyright (c) 2023 Author (s). This is an open-access article distributed under the terms of Creative Commons Attribution License (CC BY). To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/

1. It works to identify cases that require new production plans (material capacity, capacity in human resources) to provide support and service activities in industrial companies.
2. It is a more accurate way to plan future costs.

There are several benefits provided by the activity-based budgeting approach, including the following:

1. Linking the planning process to strategic objectives, analyzing spending options, prioritizing, and supporting the process of continuous improvement (Banovic, 2005: 62).
2. A statement of activities that do not add value to the product or service from the customer's point of view, which constitutes an opportunity to reduce costs (Janíková, 2011: 26).
3. Focusing on the customer's requirements, not the work requirements, and this contributes to knowing and analyzing the required resources according to the customer's requirements, and thus linking them to the strategic objectives (Farhat & Yassin, 2017: 99).
4. Performing activities at a lower cost than competitors by controlling costs and the factors causing them (Mabberley, 2004: 33)

2.3 The features of activity-based budgeting:

Interest in activity-based budgeting has increased recently due to its advantages, including: (Khalil et al., 2018: 131) (Rasheed, 2020: 53)

1. Activity-based budgeting begins with estimating sales volume and determining the resources needed for production, which leads to reducing expenses, increasing profit margin, increasing production, and reducing the cost of capital.
2. It works on balancing and matching activities, which helps to achieve many gains, including the ability to properly plan, control, reduce costs, and compare with the traditional budget, because there is a link between the level of activities and the level of spending resources, as activities are the cause of cost.
3. It enables investment decisions to be used accurately as a result of determining real costs without risk, which helps in achieving the strategic objectives of the economic unit.
4. It helps economic unit managers plan future operations correctly by accurately identifying direct and indirect costs that help in the pricing process in a fair and equitable manner.
5. Activity-based budgeting takes into account all the steps involved in the activity, evaluates costs, and eliminates non-value-adding activities, which helps save costs and produce at a lower cost than competitors, and helps the economic unit gain a competitive advantage in the market.
6. It identifies the areas that require a lot of support activities and services in the economic units, and it also positively affects the behavior of employees because it depends on their participation in analyzing and determining activities and their support for the budget.

2.4 The elements of applying the activity-based budgeting:

When applying the budget on the basis of activity, it is required to provide a set of elements, which are: (Farhat and Yassin, 2017: 99) (Al-Hubaiti, 2002: 281).

1. The company's higher management realizes the importance of applying the budget and confirms its adoption of activities-based concepts.

51	<p>ISSN 2576-5973 (online), Published by "Global Research Network LLC" under Volume: 6 Issue: 9 in Sep-2023 https://globalresearchnetwork.us/index.php/ajebm</p>
	<p>Copyright (c) 2023 Author (s). This is an open-access article distributed under the terms of Creative Commons Attribution License (CC BY). To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/</p>

2. Availability of an organizational and administrative structure that enjoys the flexibility to implement the budget system, make adjustments, and involve the administrative levels when preparing the planning budget.
3. Availability of sound accounting systems that provide the necessary and accurate data and information that contribute to the planning process, budget preparation and cost determination of the products, services, and activities carried out.
4. The availability of qualified human resources that enable the application of activity-based budgeting.
5. The complexity and diversity of services provided prompts the need for activity-based budgeting to control costs and rationalize available resources.

3. The concept of planning budgets and stages of their preparation:

3.1 Definition of Planning Budgets:

Achieving corporate goals depends on carrying out advance planning, organizing, directing, and administrative control. Through this, the planning budget is viewed as a financial and quantitative translation of the objectives that the company's management seeks to reach. Planning budgets are also an effective control tool aimed at ensuring proper planning and implementation of plans drawn up by the administration. The budget is one of the important tools used by the company for the purpose of planning, controlling, and evaluating performance. Budgets have a tangible impact on various sectors, and budgets also have a clear impact on companies in the private sector and in various fields (Abdulaal, 2013: 7-9).

Keller & Ferrara (1966) defined planning budgets as “the coordinated plan of all operations and activities of the project in the budget period”, because this plan provides the project with an estimate of the total profits and the profits achieved by each section of the project by grouping sales, industrial, marketing and administrative expenses, and by including Elements of revenues and expenditures that were not included in any of the sub-budgets (Al-Janabi, 2017: 34). Planning budgets are also defined as “a quantitative financial plan that covers various aspects of the company's activities that it intends to implement in the future and for a specific period” (Awadullah and Abdulqadir, 2020: 257). Thus, a planning budget is a document that translates plans into the money that will need to be spent to accomplish the planned activities (expenses) and the money that will need to be generated to cover the costs of doing the work (income).

3.2 Functions of planning budgets:

The achievement of the company's objectives is closely linked to the planning budgets, as there is no planning without control, and there is no control without evaluation of the actual performance with the planned performance of the company. Thus, the most important advantages that can be benefited from through the application of the planning budgets system can be identified as follows: (Al-Mahaina, 2022: 246-248) (Awadullah and Abdulqadir, 2020: 258-259)

1. Planning budgets as a planning tool: Planning is defined as setting goals, defining them, and developing company strategies in a way that achieves goals. Since a planning budget is a planning tool, it translates plans and goals into speculative schedules for the various activities in the company. Planning is the first function of the planning budgets at the company level, and the complementary element for analyzing its strategic situation. Planning is carried out in a logical and orderly manner, as it enables the conditions to be changed for the better if the administration expects a cash deficit during the budget period. It sets up treatments by arranging the necessary funding long before it is needed. Planning sales in the company

52	<p>ISSN 2576-5973 (online), Published by “Global Research Network LLC” under Volume: 6 Issue: 9 in Sep-2023 https://globalresearchnetwork.us/index.php/ajebm</p>
	<p>Copyright (c) 2023 Author (s). This is an open-access article distributed under the terms of Creative Commons Attribution License (CC BY). To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/</p>

based on market demand, in light of the available production capacity, is an example of the planning process.

2. The planning budget as a tool for control and evaluation of performance: Control is the process of subjecting events to conformity with what is planned. Cost control is defined as “the ability to subject costs to a planned behavior.” Planning budgets are an effective tool through which the company can carry out the process of monitoring and evaluating performance by measuring the planned with the actual performance, which is expressed in actual numbers extracted from the system. In the event that there are deviations between the expected results and the actual results, the reasons for the deviations are known through the responsibility centers in order for the company's management to take corrective measures. It should be noted that the various administrative levels must participate in the process of preparing the planning budget, as it helps to adhere to the budget estimates, improve the performance of the company's employees, and work to reduce errors and deviations as much as possible. Using the planning budgets, control depends on several objectives: (Al-Afandi, 2003: 42-43).

- a. Ensure the safety of the implementation of plans.
- b. Ensuring that implementation conforms to established plans, predicting errors and deviations before they occur, and taking remedies for them.
- c. Analysis of the causes and factors leading to the occurrence of deviations.
- d. Work to find appropriate solutions to correct deviations by adjusting plans in line with new variables.
- e. Clarify the deviations that occur during implementation and work to correct them.

3. The planning budget as a tool for motivate human resources: Planning budgets are a tool to motivate the human resources in the company to achieve its goals by directing them to achieve its numerical and quantitative goals that are included in the budgets because not achieving the planned budget at the beginning of each year is one of the forms of failure that is reflected in the performance of employees within the company.

4. The planning budget as a tool for coordination and communication: Coordination is the harmony and balance of all aspects of production, services, and departments in the company in the best way in order to achieve the objectives of this company. The budget integrates the purchasing management plan with the requirements of production management, and then the production department develops a plan for the sales budget. The finance manager also uses the purchases budget and the sales budget to determine the company's cash needs.

3.3 Stages of preparing activity-based planning budgets:

An activity-based budget starts with outputs represented in products and services, and then identifies the resources needed to create those outputs. Therefore, a distinction must be made between three different budgeting perspectives: traditional budgeting, flexible budgeting, and activity-based budgeting.

Traditional budgeting relies on the use of job-based elements, such as salaries, supplies, depreciation, equipment, etc. Whereas, flexible budgeting uses cost behavior to divide functionally based elements into fixed and variable components. Activity-based budgeting works in reverse, starting from activities and their engines to basic costs. As well, traditional budgeting focuses on outcome rather than processes or root cause, while activity-based budgeting focuses on processes, giving managers the right direction to achieve desired results, and to identify root causes. This knowledge can be used to influence process efficiency and cost (Huynh et al., 2013: 185).

The planning budget is prepared according to the following steps: (Kaplan & Cooper, 1998: 304).

53	ISSN 2576-5973 (online), Published by “Global Research Network LLC” under Volume: 6 Issue: 9 in Sep-2023 https://globalresearchnetwork.us/index.php/ajebm
	Copyright (c) 2023 Author (s). This is an open-access article distributed under the terms of Creative Commons Attribution License (CC BY). To view a copy of this license, visit https://creativecommons.org/licenses/by/4.0/

1. Estimating the expected volume of production and sales for the coming period: When starting this step, the company estimates the expected volume and mix of production and sales. These estimates include, in addition to that, atypical products and services that will be sold to certain customers who are expected to buy them. Estimates should include total production or products and sales to customers, as well as details of production and sales orders.
2. Forecasting the demand for the company's activities: The second step in preparing planning budgets is forecasting the activities that the company needs in order to accomplish the volume of the mix of production, sales, and customers in the previous stage. This process should be similar to that used in the estimated budget, with regard to calculating the budgets for purchases of direct materials, used machinery, and direct labor, based on the forecast production for the next year. Preparing activity-based planning budgets enhances traditional budgets by estimating the demand for all indirect and supporting activities, such as material loading activity and receiving activity.
3. Determining the resources needed to accomplish the company's activities: After quantitative estimates of the demand for activities have been determined, the budget preparation committee estimates the amount of resources that must be available to accomplish the required volume of activities. Estimating the required resources depends on realizing the importance of effectively completing activities. The budget preparation committee must be aware of the quantities and types of resources required to be secured in proportion to the amount of activities required to be completed.
4. Determining the actual resources that must be secured: In this stage of budget preparation, the required resources are converted - with the aim of completing the activities that were calculated in the previous stage - into an estimate of the total resources for each type of resource that must be secured.
5. Determining the capacity of the company's activities: After the process of identifying the resources of the activities has been completed, in this step it is possible to determine the actual energy, which is the energy of the resources that, if it falls short of it, then begins to restrict the company's ability to carry out its activities. In other words, it can be said that there are two models of energy, one at the activity level and the other at the resource level. If the resources are shared, the unused energy at the activity level requires accounting for all activities that consume these resources.

4. Application of the planning budgets by relying on an activity-based budgeting approach in SDI Company:

In this chapter, it was touched on the reality of preparing planning budgets in SDI Company, through an analytical study of the extent of the possibility of applying the budget on the basis of the activity and its impact on controlling cost.

4.1 The possibility of applying the planning budgets by relying on an activity-based budgeting approach in SDI Company:

SDI company has several factors that enable the application of the planning for planning budgets on the basis of activities, and these factors are the following:

1. The multiplicity of supportive activities and the increase in the importance of accounting information as a result of the development of management needs for accurate analytical information.
2. Multiplicity of products, diversity of their models, different sizes and measurements for various types of manufactured medicines.
3. The use of the automatic system in manufacturing has raised the fixed costs in the cost structure.
4. Increasing the intensity of competition locally or importing from abroad, which led to the trend towards reducing costs, as it is the strategy of continuity and maintaining the company's share in the market.

4.2 The mechanism of applying activity-based planning budgets in SDI Company:

The researcher will prepare the planning budget by selecting one of the company's administrative departments represented in the Departments of Financial Affairs, and (3) divisions of the financial department have been chosen as a model that can be applied to the rest of the departments, and the aim is to monitor costs, operations, activities, and department resources. Thus, it can be considered a sub-budget for the budget on the basis of comprehensive activity. The departments of the Financial Affairs are:

1. Financial Department: It includes (14) divisions and the number of accountants in these divisions (35).
2. Cost department: It includes (3) divisions and the number of accountants in these divisions (8).
3. Control department: It includes (5) divisions and the number of accountants in these divisions (8).

Attempting to implement the budget system will take place on the basis of activities-based on the activities of the Finance Department, which will be done according to the following stages:

4.2.1 The first stage: predicting the request for the activities of the section:

This stage is done:

1. Main Activities Analysis: There are several employees in the Financial Affairs Department, and each of them performs a specific job or activity for them. These tasks are the following: public accountant, drainage orders, assistant accountant, cost accountant, cash accountant, warehouse accountant, and auditor.
2. Determine the activities and cost engines for each activity: At this stage, the cost engines are determined to be appropriate to the activities. It is as in Table (1)

Table (1) Cost engines for each activity center in the Cash Salaries Division

No.	Activity	Cost Engine
1	Fund Movement Activity Center	Number of Working Hours
2	Drainage Orders Activity Center	Number of Drainage Orders
3	Budget Preparation Activity Center	Number of Working Hours

Source: Table prepared by the researcher based on the financial report of SDI for the year 2022.

3. Estimating the demand for activities: Table (2) shows the expected demand for the department's activities, based on company data and forecasts provided by its employees. The demand for each activity in 2022 has been calculated as follows:

- It takes (30) minutes to complete the disbursement order.
- Number of drainage orders annually $(1957) = 1957 \times 30 \div 60 = 978.5$ hours.
- It takes (10) minutes to receive cash.
- Number of annual cash receipt orders $(21552) = 21552 \times 10 \div 60 = 3592$ hours

Thus, the total demand for the box movement activity = $978.5 + 3592 = 4570.5$ hours.

4. Budget Preparation Activity Centre:

- The activity of estimating fixed assets and depreciation: The report is prepared once a year and requires (10) days = $10 \times 8 = 80$ hours.
- The activity of estimating and extracting rates for cost centers: This report is prepared quarterly and requires (3) days = $3 \times 4 \times 8 = 96$ hours annually.

- The activity of preparing cost lists:
 - A. Monthly cost lists require (3) days = $3 \times 8 \times 12 = 288$ hours annually.
 - B. Annual cost lists that need (10) days = $10 \times 8 = 80$ hours.
 - The activity of preparing the company's estimated budget: The budget requires (10) working days, verification, and approval = $10 \times 8 = 80$ hours.
 - The activity of following up the plan and preparing reports:
 - A. A monthly report that requires (1) hours = $1 \times 12 = 12$ hours annually.
 - B. An annual report that requires (5) hours.
 - The activity of the audit of accounts: This work is quarterly and requires (10) days = $10 \times 4 \times 8 = 320$ hours annually.
 - The activity of preparing the budget and final accounts: the budget and final accounts are prepared in January of the new year and it needs (22) working days = $22 \times 8 = 176$ hours.
 - The activity of financial position analysis: Only an annual report of the financial position is prepared, which requires (1) day = $1 \times 8 = 8$ hours.
- Thus, the total demand for the activity of preparing budgets = $80 + 96 + 288 + 80 + 80 + 12 + 5 + 320 + 176 + 8 = 1145$ hours annually.

Table (2) Expected demand for the activities of the Finance Department divisions

No.	Activity	Expected demand for the activity
1	Fund Movement Activity Center	4570.5 Hours
2	Drainage Orders Activity Center	1796 Order
3	Budget Preparation Activity Center	1145 Hours

Source: Table prepared by the researcher based on the financial report of SDI for the year 2022.

4.2.2 The second stage: Calculating the resources needed to complete the activities

Cost data for the selected divisions was collected and analyzed. This stage was accomplished based on examining cost records and financial statements, including (Salary lists - Drainage orders), as they are considered traditional official accounting records. Through these lists, cost is analyzed at the level of cost centers or divisions only. The researcher reviewed and studied the accounting records and redistributed them at the level of activities instead of cost centers to calculate cost engine rates, by studying the drainage orders, re-sorting them, grouping them, and manually transferring them to the activities. As for the distribution of salaries and wages, we relied on tables taken from the Salaries division.

Table (3) Resources available to accomplish activities in the Finance Department divisions

Activity	Salaries	Commodity supplies	Other expenses	Total activity costs
Fund Movement Activity Center	22047000	654500	75250	22776750
Drainage Orders Activity Center	49641000	875000	150750	50666750
Budget Preparation Activity Center	32880000	322500	62000	33264500
Total	104568000	1852000	288000	106708000

Source: Table prepared by the researcher based on the financial report of SDI for the year 2022.

4.2.3 The third stage: Calculating the energy available for activities:

By looking at the company's documents and reports such as purchase orders, internal cost reports, and human resources department reports, the energy available for activities can be calculated based on the cost engines. Calculations of the energy available for activities were made after explaining the calculation mechanism for each activity to employees in the department, as follows:

1. Fund movement activity center: The fund movement follow-up process is carried out by the treasurer, who performs two basic activities: the first is the fund movement follow-up activity, and the second is the activity of drainage orders. The energy available for this activity is calculated as follows:
 - A. The number of employees who carry out this activity (2).
 - B. Number of available working hours annually = $2 \times 300 \times 8 = 4800$ hours/year.
2. Drainage Orders Activity Center:
 - A. Each drainage order takes (30) minutes.
 - B. The number of drainage orders that can be completed is $4800 \text{ hours} \times 60 \div 30 = 9600$ orders/year.
3. Budget Preparation Activity Center:
 - A. The number of employees who carry out this activity (2), but they work alternately (The first employee works on a day and the second employee works on a day, meaning that each employee works 150 days annually, every day 8 working hours).
 - B. Number of available working hours = $2 \times 150 \times 8 = 2400$ hours/year.

The energy available for activities in the financial section can be summarized in Table (4) as follows:

Table (4) Available energy for activities in the Finance Department divisions

No.	Activity	Available energy for activity
1	Fund Movement Activity Center	4800 Hours
2	Drainage Orders Activity Center	9600 Orders
3	Budget Preparation Activity Center	2400 Hours

Source: Table prepared by the researcher based on the financial report of SDI for the year 2022.

4.2.4 The fourth stage: Preparing the budget and determining unused energy:

At this stage, an activity-based budget is set for the financial department according to the following equations:

1. The cost of the cost engine = Total activity costs \div Available energy.
2. The cost of the required activities = the cost of the cost engine \times the expected demand for the activity.
3. The unused energy (untapped energy) = Total costs of available activities - Total costs of the required activities.

The planning budget is based on the activities of the Financial Management Department according to Table (5):

Table (5) Activity-Based Budgeting in the Finance Department divisions

Activity	Total activity costs	Available energy	Cost of the cost engine	Expected demand for the activity	Cost of the required activities	Unused Energy
Fund Movement Activity Center	22771250	4800	4744	4570.5	21682452	1088798
Drainage Orders Activity Center	50666750	9600	5278	1796	9479288	41187462
Budget Preparation Activity Center	33264500	2400	13860	1145	15869700	17394800
Total	106702500	-	-	-	47031440	59671060

Source: The table prepared by the researcher.

4.2.5 The fifth stage: Activity-Based Budgeting analysis in the Finance Department's divisions:

1. Analysis at the resources level:

$$\text{Unused resources} = \text{Available resources} - \text{Resources required to complete activities}$$

It is noted from the financial department's budget in Table (5) that resources worth (47,031,440 IQD) were utilized. These resources were used to accomplish the activities of this section out of the total resources (106,702,500 IQD), meaning that there are unused resources worth (59,671,060 IQD). The resources valued at (47,031,440 IQD) are called (critical resources), meaning that without this value, the department's activities cannot be carried out. This means that additional resources can be exploited when the volume of output increases without having to resort to adding new external resources. Knowing that as the company becomes more efficient as a result of the development of the production process, it will reduce the volume of activity required to produce the same volume of product. The amount of resources required can also be reduced each time this activity is completed, which will be clearly reflected in the calculation of the required resources, the actual energy of the activities, and the energy used for the resources.

2. Analysis at the activity level:

$$\text{Unused activities} = \text{Unused resources} \div \text{Cost of the cost engine.}$$

It appears from Table (6) that the Fund's activity center has a loss equivalent to (230) hours, and that the equivalent of (7804) additional drainage orders can be completed. There is also a loss in the activity center of preparing budgets and reports equal to (1255) hours. These activities can be used without having to add new resources.

Table (6) The volume of unused activities in the financial department divisions

Activity	Unused Energy	Cost of the cost engine	Unused activities	Cost engine
Fund Movement Activity Center	1088798	4744	230	Hours
Drainage Orders Activity Center	41187462	5278	7804	Orders
Budget Preparation Activity Center	17394800	13860	1255	Hours
Total	59671060			

Source: The table prepared by the researcher.

Conclusion:

The detailed and analytical financial information provided by activity-based budgeting about activities contributes to imposing more accurate and better control over costs. In addition, this information facilitates the process of implementing the activity-based budgeting system as it is a planning and control tool that contributes to reducing costs. Budgets are one of the most important planning tools used by the company. It is also a monitoring tool for the performance of various activities, because it uses it to reach its planned goals, in addition to working to achieve harmony and coherence between the performance of the different departments of SDI Company. Activity-based budgeting is used to allocate resources based on the relationship between activities and costs.

In addition, it is an introduction to budget preparation and includes quantitative terms for the company's activities and operations, which reflect expectations in the work performed, and include the quantity of cost engines to achieve strategic goals or planned changes to improve performance. Analysis using activity-based budgeting enables management to predict the demand for resources required in the future through the decisions taken at the current stage. Activity-based budgeting has a technology that allows continuous communication at the information level between separate departments in SDI company, and this helps in making better decisions for allocation and management. Available energy resources, in a way that meets the requirements of all departments.

So, the necessity of working to implement activity-based budget preparation, albeit partially, in some departments of SDI Company, and work on the participation of employees in analyzing and identifying the activities that are among their work, as this has a positive impact on supporting the budget, and helps the company's employees realize the details related to the dimensions of the duties assigned to them, which will reflect positively on their behavior and reduce their resistance to the new system in the company.

References:

1. Abdulaal, M. A. A. (2013). Achieving integration between activity-based budgeting and beyond budgeting approaches with the aim of increasing the effectiveness of performance management systems: an applied study. Master's thesis, College of Commerce, Cairo University, Egypt.
2. Al-Afandi, S. M. (2003). The extent of the use of planning budgets as a tool for control and evaluation of performance in public sector establishments. Master's Thesis, University of Aleppo, Syria.
3. Al-Dhahabi, Jalila Idan and Al-Qusous, Moab Guide (2009). The impact of budgeting based on activities in implementing competitive strategies: an applied study in the General Company for Electrical Industries - Tammuz Laboratory. Journal of Economics and Administrative Sciences, University of Baghdad, Volume 15, Issue 55, Pages 211-229.
4. Al-Hubaiti, Q. M. (2002). Using an Activity-based costing (ABC) approach to determine the cost of services in health institutions: Case study Princess (Z) in Jordan, Tanmiyat Al-Rafidain Journal, 24 (70), 279-294.
5. Al-Janabi, A. N. B. (2017). The basis of accrual accounting and its role in preparing and setting priorities for the planning budget for local governments: an applied study in Al-Qadisiyah Governorate. Scientific Journal of Business and Environmental Studies, 8(4), 28-53.
6. Al-Mahaina, B. K. (2022). Planning budgets: their concept, objectives, and how to prepare them. Arab Journal for Scientific Publishing, Issue (47), 243-261.

7. Al-Masoudi, H. A. J. & Rasheed, S. A. (2021). The role of activity-based budgeting in achieving the strategic objectives of economic units. *Warith Scientific Journal*, 3(5), 234-264.
8. AL-Zubaidi, A. G. M. (2023). Using the activity-based budget (ABB) in implementing the cost leadership strategy and improving profitability: applied study in Al-diwanayah tire factory. *World Economics and Finance Bulletin*, 19, 39-46.
9. Antos, J. & Brimson, J. A. (2009). *Activity Based Management, Activity Based Costing, Activity Based Budgeting*. Willy. Value creation Group Inc, Dec 2009.
10. Awadullah, A. H. A. & Abdulqadir, A. H. (2020). The importance extent of the use of planning budgets in planning, control, and improving performance in Sudanese industrial companies. *International Journal of Scientific Studies Publishing*, 5(3), 251-274.
11. Banovic D., (2005). *Evolution and Critical Evaluation of Current Budgeting Practices*. Master's Thesis, Faculty of Economics, University of Ljubljana, Ljubljana.
12. Blocher, E. J., Stout, D. E., & Cokins, G. (2010). *Cost Management: A Strategic Emphasis*. 5th ed. McGraw-Hill Education, New York.
13. Farhat, M. K. & Yassin, A. M. (2017). The Possibility Of Applying The Budget System Based On Activities In Banks - Field Study On Private Banks Listed On The Damascus Stock Exchange. *Tishreen University Journal for Research and Scientific Studies, Economic and Legal Sciences Series*, 39(4), 91-110.
14. Huynh, T., Gong, G., & Huynh, H. (2013). Integration of activity-based budgeting and activity-based management. *International Journal of Economics, Finance and Management Sciences*, 1(4), 181-187.
15. Janíková, D. (2011). Draving up a budget using the Activity Based Budgeting methodology through the simulation of processes. *Quality Innovation Prosperity*, 15(2), 18-30.
16. Kaplan, R. S. & Cooper, R. (1998). *Cost & Effect: Using Integrated Cost Systems to Drive Profitability and Performance*. Harvard Business School Press, Boston.
17. Keller, I. W. & Ferrara, W. L. (1966). *Management Accounting for Profit Control*. McGraw-Hill, New York.
18. Khalil, K. A. Y., Al-Shafie, K. A. A., Al-Basheer, M. A. E. (2018). The extent of the possibility of applying the activity-based budgeting system: a field study on industrial companies operating in the White Nile State. *Scientific Journal of University of El Imam EL Mahdi*, No. (11), 117-152.
19. Mabberley, J. (2004). *Activity-Based Costing in Financial Institutions*. Translation: Prof. Dr. Ahmed Muhammad Zamil, Research Center Publications, Institute of Public Administration, Saudi Arabia.
20. Rasheed, S. A. (2020). Integration between zero-based budgeting and activity-based budgeting and its impact on achieving the strategic objectives of economic units (Suggested Framework), Master's thesis, College of Administration and Economics, University of Karbala, Iraq.
21. SDI Company (2023). Financial report of SDI Company for the year 2022, Samarra, Iraq.