



Feasibility Study of Designing and Implementing Performance Budgeting in the Iranian Public Universities and Academic Institutions: The Case of the Sharif University of Technology

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ABSTRACT

The role of budgeting in governmental universities is vital since it affects youth generation. According to recent article passed by education ministry of Iran fundamental changes in universities management is required. In this study Sharif University of Technology has been chosen as a case study, obstacles in are identified and relatively a solution is proposed. The result indicates the necessity of implementing performance budgeting in this university.

Keyword: Public Universities, Performance Budgeting, Sharif University of Technology

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INTRODUCTION

A university is a system comprised by several sub-systems; the most important managerial system is accordingly financial system. However this system is affected by external and internal factors where a change in external or internal environment could change the efficiency or effectiveness of financial system. According to recent article passed by government all governmental universities are required to implement operational budgets in order to calculate the cost of education and research and to determine expenditure per student. In this regard fundamental changes in budgeting process of universities seem necessary. This could aid governmental managers in design making related to appropriate resource allocation and future planning. A desirable starting point would be scrutinizing current processes and identifying strengths and weaknesses and how it could be optimized.

Budget is essentially considered as a governmental act or a pathway through a certain limited time. It is best known for allocating limited amount of resources among unlimited demands. These resources are scarce thus optimizing the usage of them requires effort and knowledge which means Realizing the most benefit possible out of restricted amount of resources. The government is seeking for a better way of planning and on element of this approach is using operational budget where it focuses on performance assessment of organizations. Especially with privatization of government owned agencies the tendency to move towards cost management is growing. Performance budgeting is a tool used to improve forecasts made in resource consumption and allocation, controlling financial resources and optimizing the calculation of cost of finished goods and improves competitive environment among universities. In performance budgeting not only credits are allocated to responsibilities, programs, activities and projects, but also operation capacity and the expenditure related to performing organizational tasks are computed by cost accounting with major shift towards activity based costing. Transparency of budgeting process, increasing efficiency and effectiveness of governments performance, modifications and reforms in decision making procedures with regards to scarce amount of resources, enhancing accountability among government's top authorities and finally creating a linkage between the level of management compensation and its performance can be thought of. This enforces government owned universities to design and implement operational budget in order to facilitate the allocation process.

LITERATURE REVIEW

Budgeting Frameworks

Government's budget is a summary of expected inflows and outflows. It is in essence the programs and their financing which the government intends to execute in a specific period of time. Budgeting differs in private and state owned organizations however the biggest difference is the purpose of expenditures. In environments where the aim of expenditures is not acquiring it back and achieving a certain result is sometimes intangible, budgeting is whole other story. The purpose of expenditures in governmental agencies is almost complex and its measurement is difficult and subsequently indirect. The lack of motivation to maximize profit and difficulty in performance assessment is another side of difference between private and state owned organizations. Budgeting process can be divided into various steps which includes programs going to be performed, the responsible authority and its timing. Budgeting in universities usually encompasses four steps:

- Execution planning by Government
- Regulatory approval by parliament
- Execution by Government
- The budget bill to monitor the final budget document

Since major person universities are governmental and use governmental resources, the purpose of this study is assessing budgeting effectiveness in public organizations especially universities.

Budgeting Methods

There are three types of budgeting as follows:

- Incremental budgeting
- Zero based budgeting
- Performance budgeting (activity based)

Any kind of budgeting mentioned above not only changes the way budget is executed but also key success factors and performance appraisals are different. In the status quo selecting just one method to be executed in whole government is not possible and many countries use various budgeting methods simultaneously.

Incremental Budgeting

Incremental budgeting was introduced in the early 20 century as a response to corruption and due to its increased financial accountability it is the most used method in public agencies even in educational systems. (Zirdet, 2009). In this method previous year's budget serves as a basis for current year consumption and annual increase is considered with regards to price fluctuations, operation capacity and new responsibilities of government. Thus in incremental budgeting, an increase in all budget items are estimated and adjustments for certain items are planned. (Varlotta, 2010). In this method no criteria for efficiency and effectiveness of performance is established, merely starting from primary budget and increasing a fair share each year is desired.

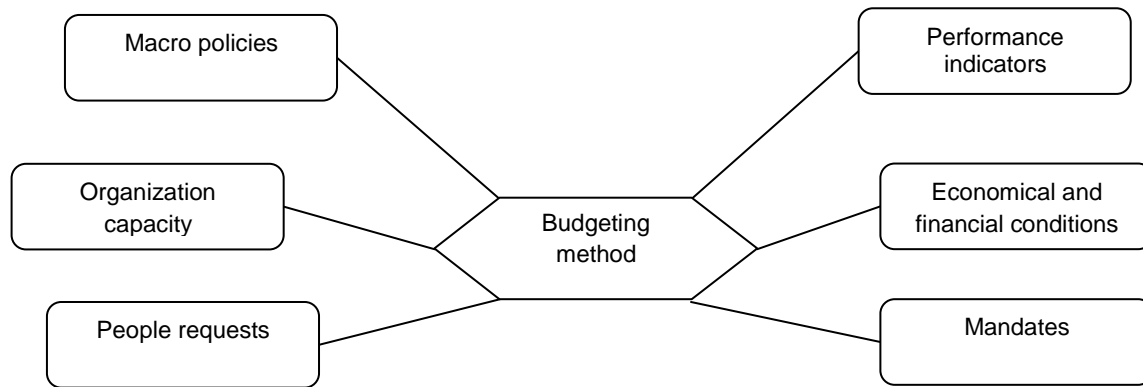


Figure 1- Factors relevant to budgeting methods

Zero-based budgeting

The main goal of this budgeting method is prioritizing the tasks to be executed. It is expected that management reduces its budget to 20% of previous year and then add their current year expectations to it; this is called “Modified Zero-based budgeting”. Although this approach requires management to compare last year’s activities with this year but it eliminates the debates surrounding justification of all the programs from scratch, thus this approach intends to assess some of the programs from the beginning and it is applicable throughout the whole organization. The positive side of this approach is to review some of the principles and activities and makes room for reconsiderations of resource allocation. The negative side is the pressure imposed to resources which creates resistance and also makes comparison between departments difficult.

Performance Budgeting

Performance budgeting is a combination of annual performance appraisal and budgeting which depicts the relationship between programs credits and expected results. This indicates that a goal or a basket of goals are achieved via a certain level of credits. In performance budgeting resources are allocated based on priorities and measurable results. The IMF (International Monetary Fund) has described performance budgeting as “methods used to improve the linkage between allocated resources with performance results”.

Three points can be made with regards to operational budgeting:

1. The budget is allocated based on organizations performance, thus firstly performance evaluation is necessary in order to allocate resources. Performances are tied to the degree of achieving the desired annual and long-term results.
2. The level budget to be allocated with regards to performance
3. How to render or produce services or products with higher quality and lower budget which means improving efficiency and effectiveness of operation.

Methods of Implementing Performance Budget

There are three main methods for executing operational budgeting, namely cost accounting, Ergometer, activity based costing.

A) Performance Budgeting Based on Cost Accounting Methods

The implementation of performance budgeting requires both cost accounting and financial accounting parallel to each other. Following steps are followed in order to achieve performance budgeting based on cost accounting:

1. Categorization of activities
2. Selection of measurement unit
3. Prediction of operation volume
4. Operation cost calculation

B) Performance Budgeting Based on Measurement Methods

The cost accounting methodology is comprehensive where it considers all the elements of costs such as payroll, equipment and even depreciation). However its implementation requires the use of both financial and advanced cost accounting which is hard to apply in real world. In addition as the prices fluctuate and payroll change, the working unit cost needs to be calculated on rolling basis. Thus measurement methodology is advised to institutions for predicting operational and human resource cost.

In measurement methodology merely the time spent to complete one unit of work is considered and other costs such as depreciation are not involved in budgeting procedure. In other words the relationship between the production volume and its required time are considered in budgeting practice.

C) Activity-Based Costing Method

Activity-based costing method can be used parallel to other costing methods. This method incorporates the impact of new achieves in modern business environment and its related cost. Thus ABC attempts to absorb these costs into manufactured products or rendered services and that is why ABC is different than other costing methods. Also this method



is aligned with the notion that providing high quality services could be achieved with lower cost. Unlike other costing methods, ABC could be used in complex business environments. In these situations two new and variable costs are considered, namely: Variety and complexity costs. In traditional costing methods there is no direct relationship between the level of required activities and related consumable resources, as result the cost of rendered services does not directly reflect the level of activities and consumed resources. However in ABC costing method, organizational costs are linked to operational costs thus the ineffective linkage between activities and resources with their related cost is mitigated.

Melckers and Vilogy (2004, 2005), Dilencer (2008), Moyenhian (2008) have scrutinized various performance indicators. Burgia and Queens (1996), Craper and Diyuri (1996) have studied budgeting methods in universities. Craper and Diyuri (1996) have specifically discussed profitability analysis, Budgeting controls, and Performance reporting and investment appraisals in academic institutions. They suggested management accountants to use modern budgeting techniques in academic institutions due to rapid changes in academic atmosphere. Burgia and Queens (1996) assessed major success factors in academic institutions; they concluded that traditional budgeting methods are still dominant in academic institutions. However they introduced four other methods as well:

- 1- Canonical System
- 2- Planning and Budgeting systems
- 3- Zero based planning and budgeting
- 4- Zero based and performance budgeting

Taeb and Hossein (2002) have assessed the compatibility of budgeting methods in private institutions in comparison to public organizations. Eight public Malaysian universities were selected; the result indicated that some public universities were using budgeting methods used in private firms, however their study did not assessed the quality of budgeting methods in public universities. Cox, Dawn and Smith (1999) in a study titled "ABC in Academic institutions" investigated the use of activity based costing in universities. They first introduced the background of activity based costing, then defined the activities performed in universities, that assigned specific codes to each activity and calculated the consumed time in each activity. They categorized university's activities into four tiers, namely Teaching, Research, Administration and Public Services. They concluded that parallel and combined reporting of resources and relative costs of each activity makes the use of ABC most optimized.

RESEARCH METHODOLOGY

Sharif University of Thechnology was established in 1970, having over 420 faculty members and 11000 students, 730 employees (380 permanent and 350 temporary). First we shall elaborate on current budgeting method in Sharif University of Thechnology, then the possibility of implementing activity based budgeting is discussed. The budgeting process is divided into three sub processes; determining activities, categorizing costs, budgeting the activities.

Current Budgeting Process at the Sharif University of Thechnology

Preparing public university budget is affected by couple regulations from different governing bodies such as constitution of Islamic Republic of Iran, trading regulations in universities, government's development plan and etc. each year, the ministry of science, research and technology proposes the required annual budget based on the number of enrolled students. Budgeting starts with dedicated revenue of each university and the next step would be estimating basic earnings. For each university a credit ceiling is determined, each university is supposed to segment the approved credit ceiling to different programs.

Implementing Performance Budgeting

Performance budgeting requires activity based costing and this in turn depends on establishing two parallel financial systems, namely cost accounting and financial accounting. The following steps are necessary for implementing activity based budgeting:

1- Categorizing activities

The organization's operation should be determined, and then these operations are divided to several programs and each program has its own activities and sub activities. The purpose is to facilitate the procedure of determining an appropriate unit for measuring the volume of operation. The main tasks of a faculty member is attending at office, correcting test papers, teaching, preparing education content and etc.

2- Determining measurement unit

The university's operation is divided into two broad groups: measurable and immeasurable. Determining a measurement unit for the first group is not a difficult task such as educational operation where the number of students or the number of classrooms is considered for measurement purposes. However cost estimations differ for the second group since selecting an appropriate measurement unit for the second group is not an easy task; Operations such as research and development could be mentioned since the results are not predictable.

3- Estimating the cost of one unit of operation



After determining an appropriate unit for measurement, the cost of one unit of production is calculated. For instance the total cost of one unit of production could be calculated as below:

- Average needed time, labor/hour or labor/minute, (T)
- Average needed labor, labor/hour or labor/minute, (L)
- Expenditure per unit such as Utilities, (UTL)
- Overhead per unit (OVH)
- Depreciation per unit ((DEP)

If COST shows cost of production per unit, then $COST = (T \times L) + UTL + OVH + DEP$

4- Forecasting production volume:

Forecasting production volume is usually based on previous experiences and the nature of operation.

5- Calculating total cost of operation:

In this phase production cost of one unit is multiplied by the estimated production volume.

Several steps should be followed for implementing activity based budgeting, some could be run parallel and some are prerequisite for each other.

- Step 1: Gathering system design team
- Step 2: Defining operation centers
- Step 3: Separating operational centers based on their operation
- Step 4: Determining each operation center's output
- Step 5: Operation costing for each operation center
- Step 6: Determining cost of production for each output

Implementing Performance Budgeting at the Sharif University of Thechnology

Three different phases are introduced for implementing performance budgeting in the the Sharif University of Thechnology:

First step: Defining university's activities

- Determining major activities performed in university
- Determining the total financial resources consumed
- Determining Cost drivers for each consumed resources
- Determining costing activities

The first step in Activity-Based Budgeting is to determine the university's operation. Crooper and Cook (2000) have identified six: teaching, research, student oriented activities, consulting, administrative and regulatory requirements. Cox, Daoni and Smith (1999, 2000) have identified four operations: teaching, research, public services and administrative. After reviewing the current procedure in Sharif University of Thechnology, five different operations are identified: teaching, research, administrative, financial and construction activities, then the total consumed financial resources are determined. Afterwards the operation stimulus should be identified. The cost of resources should be allocated to each cost pool of operation.

Each cost pool represents an activity in specific operation. As a result two main processes should be followed: apportionment to operations and faculties. According to principles of activity based budgeting, apportionment to operations (five mentioned operations) is called primary apportionment and subsequently apportionment to faculties is called secondary apportionment. The final phase in the first step is related to determining the cost of operations in terms of value.

Second step: Defining the cost objects

- Determining cost objects and the final goal of each operation
- Deterring cost drivers for each operation
- Costing cost objects in terms of value

Cost object is the reason behind an operation, in Sharif University of Thechnology's case, allocated resources to each faculty and research center is the cost object. In order to do so, right driver should be chosen. The number of students, the number of faculty members, the number of employees, the number of researches and etc. can be considered as operation stimulus. Then the share of each faculty from consumed resources should be calculated.

Third step: Budgeting for the activities

Performance budget can be implemented in a reverse order with respect to activity based costing. Thus following three steps are followed: defining project scope and determining main activities, measuring the cost objects and finally determining

performance or activity-based budgeting budget. As stated earlier, activity-based budgeting requires activity-based costing, thus in the first and second steps necessary elements are identified for proper activity-based costing implementation. This is depicted in Figure 2. Also, figure 3 shows the proposed process for implementing the activity-based costing at the public universities.

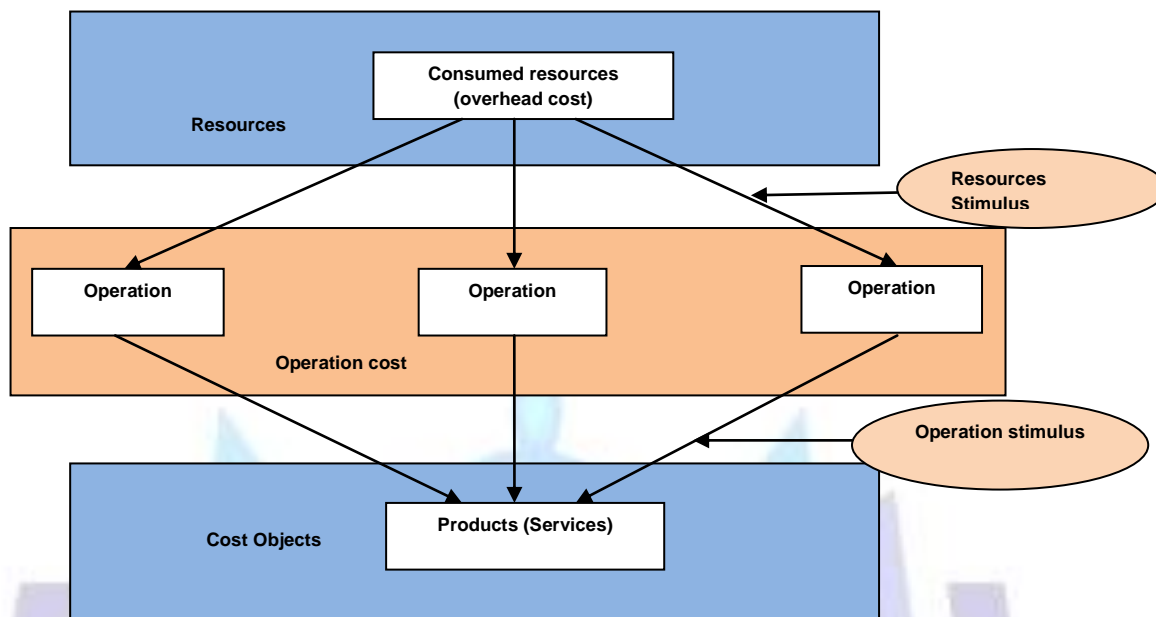


Figure 2- Activity-based costing- primary and secondary cost absorption (Rohupartee and Magad, 2011)

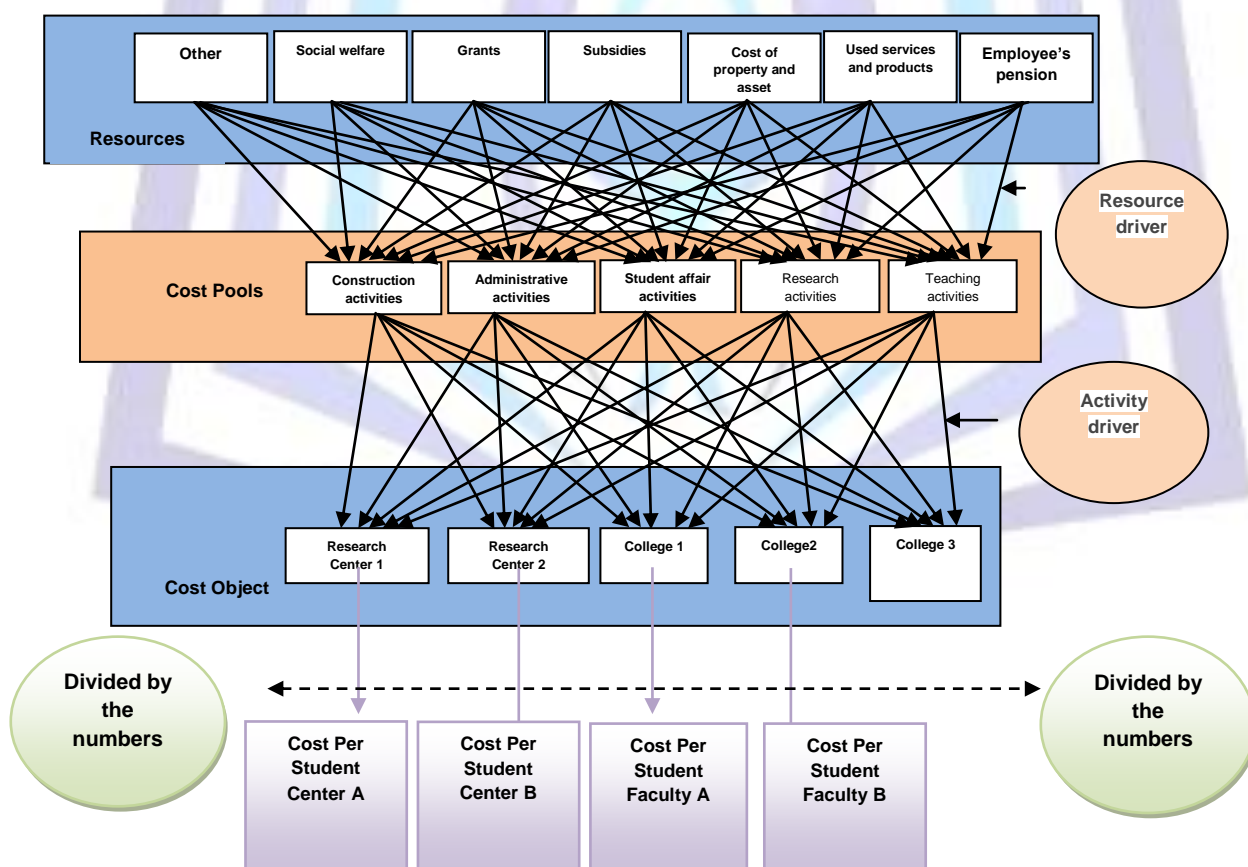


Figure 3- Proposed process for implementing activity-based costing at the public universities

Developing countries are experiencing transition period in which the business environment is rapidly changing and is reaching for stability. In this period of time, performance indicators play an important role since they are the basis of strategic planning, remuneration planning and external assessment.



The experience of countries listed in OECD indicates how vital performance indicators are in public resources management. Also selecting appropriate performance indicators facilitates comparison among different faculties and enhances accountability in terms of performance, efficient resource allocation and optimized use of limited resources and results in improved decision making.

Many have attempted to bring common and useful performance indicators for public universities in Iran such as article 510 of Supreme Council of Cultural Revolution. Generally following criteria are expected for selected performance indicators:

- ✓ Transparent vision
- ✓ Providing appropriate solutions to current challenges in educational realm
- ✓ Realistic
- ✓ Ability to provide analytical linkages
- ✓ Ability to be implemented
- ✓ Comprehensive

CONCLUSION

The purpose of this study is to assess the feasibility of implementing activity based budgeting in Sharif University of Technology. Having adequate knowledge about current processes is necessary for this task. In order to reach the goals set by fifth development plan passed by government it is necessary to implement activity based budgeting as set forth by this plan. To be successful in executing this plan and its mandates, it is necessary for high governmental managers to be informed about the benefits of activity based budgeting in public universities and how it can improve their decision making process which brings efficient resource allocation and consumption.

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