“Designing zero-based budgeting for public organizations”

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ARTICLE INFO	Mukdad Ibrahim (2019). Designing zero-based budgeting for public organizations. *Problems and Perspectives in Management*, *17*(2), 323-333. doi:10.21511/ppm.17(2).2019.25
DOI	http://dx.doi.org/10.21511/ppm.17(2).2019.25
RELEASED ON	Monday, 10 June 2019
RECEIVED ON	Thursday, 18 April 2019
ACCEPTED ON	Thursday, 23 May 2019

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JOURNAL	"Problems and Perspectives in Management"
ISSN PRINT	1727-7051
ISSN ONLINE	1810-5467
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
24	0	0

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BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

Received on: 18th of April, 2019
Accepted on: 23rd of May, 2019

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DESIGNING ZERO-BASED BUDGETING FOR PUBLIC ORGANIZATIONS

Abstract

Several systems of budgeting have been introduced into practice over the last fifty years. While more popular budgeting systems such as incrementalism and Planning Programming Budgeting Systems (PPBS) have seen continued popularity and resilience as budgeting systems, zero-based budgeting (ZBB) has experienced a resurgence in popularity, as governments and public organizations alike seek to control wasteful spending within their departments. The aim of this article is to provide users with a step-by-step guide to designing zero-based budgeting for public organizations. This article begins by describing the foundations of zero-based budgeting, as well as providing a brief comparative exploration of ZBB alongside other contemporary budgeting systems. To gain a deeper understanding of zero-base budgeting and the potential, as well as the drawbacks that this type of budgeting system holds, this paper examines the actual experience of several organizations that have implemented the zero-based budgeting method. This is accomplished by conducting a critical review of all the research and case studies that have been conducted on this topic. It is the hope of the author that both public sector and non-profit organizations will benefit from the findings of this paper when considering the implementation of their own zero-based budgeting, resulting in better planning and performance evaluation.

Keywords public administration, decision making, financial planning, budget system

JEL Classification H61, H72, H83

INTRODUCTION

Originating in the 1970's as the brainchild of Texas Instruments accounting manager Peter Pyhrr, zero-based budgeting quickly gained popularity among federal, state and local governments, with a significant number of jurisdictions having seen its adoption. Zero-based budgeting requires that all of the activities of an organization be subject to a periodic review. This is an attempt to resolve the issue of incrementalism, which relies on the budget of the last period as a starting point for the formation of any future budget. This system proposes that budget makers must rely on last year's budget as a basis for making next year's budget. While incrementalism simplifies the budget process by using the previous year budget as a starting point, the time saving afforded by such simplification of budgeting process does not compensate for the continuation of wasteful spending that is characteristic of incremental budgeting system, particularly in economically uncertain times. ZBB, on the other hand, takes a ground-up approach by taking a fresh look at merits and justifiability of all programs and activities, past and proposed future activities, on a yearly basis and then makes the correct additions or removals of activities accordingly. The use of zero-based budgeting was thus conceived as a superior alternative to incremental budgeting methods, which many view as promoting wasteful spending, due to the fact that any part of the budget,

which is not spent during a given period, is reduced in the following budget period. In this regard, zero-based budgeting is seen as a more detail oriented alternative to the incrementalist view.

The second system is the Planning Programming Budgeting System (PPBS), which was introduced into practice in 1966. The main objective of this system is to more comprehensively integrate the processes of fund raising and decision making into a common union. ZBB attempts to fill in the inherent gaps of PPBS by providing the tools to make a rigorous assessment of any given program activity, as well as alternative means of achieving its defined objectives. ZBB also requires the continued and critical appraisal of existing programs' activities and operations. This stands in stark contrast to PPBS where a program or activity, once set in motion, may be immunized against any further scrutiny from decision makers.

As the founder of ZBB, Pyhrr (1970) expressed "it rather than tinker endlessly with its existing budget, Texas Instruments prefers to start from base zero, view all its activities and priorities afresh, and create a new and better set of allocations for the upcoming budget year". This is achieved by rigorous breakdown and analysis of all the processes and activities within the organization that support the organizations goals. Emphasis is given to the budget constraints that are natural to most organizations and whether or not the organizations resources are being arranged and allocated in the most efficient manner. The information that may surface from questioning the legitimacy of each and every activity within the organization is intended to provide management with a clearer picture of where and what to prioritize when allocating limited resources. This ensures that organizations limited funds are directed away from programs that create little value and into programs that promise greater benefits. Pyhrr (1977) identified four basic steps that constitute the ZBB process, which are:

1. Identification of decision units in each organization.
2. The analysis of decision units in terms of decision packages.
3. The evaluation and ranking of decision packages.
4. The preparation of a detailed operating plan using approved decision packages.

When preparing a zero-based budget, it is necessary that all levels of management are involved in the budgeting process. Due to its detail-oriented nature, it thus becomes necessary to expect that any zero-based budgeting will be time intensive process in the first year of its adoption. For the very same reason, varying degrees of employee resistance to this new system of budgeting should be anticipated.

1. THEORETICAL BASIS

The amount of literature written on the implementation of zero-based budgeting methods is substantial. Ahmed (2007) used questionnaires to examine and understand how employees in the Brunei public sector perceive the impact that zero-based budgeting will have on their organization. These questionnaires were designed to answer a few fundamental questions related to the implementation of ZBB. These questions were as follows:

1. What degree of familiarity do employees have with zero-based budgets?
2. How much support can employees expect when working towards this system of budgeting?
3. What benefits and problems can be expected if ZBB is adopted?

The feedback given by these employees concluded that ZBB will significantly improve the ability of management to make effective and evidence based management decisions. Respondents, while acknowledging the usefulness of ZBB, raised concerns relating to the technical issues associating with the implementation of ZBB, such as how to identify both decision units and decision packages.

Ibrahim et al. (2017) analyze if the perceived benefits of ZBB in Borno State significantly influence its adoption. They used stratified sampling technique of their survey and arrive at sample size of 103, drawn from the total population of 139, which

http://dx.doi.org/10.21511/ppm.17(2).2019.25

comprised of 28 state legislatures, 24 permanent secretaries, 61 staff of ministry of finance and 21 staff of budget and economic planning unit. The researchers used binary logistic regression to predict whether or not the perceived benefits of ZBB have significant influence on the adoption of ZBB. The result of their analysis show that the adoption of ZBB in Borno State is influenced by its perceived benefits.

Reed (1985) explores the perceptions toward zero-based budgeting following the implementation of a zero-based budget by distributing a questionnaire to budget actors in public agencies in Texas that had implemented ZBB. These questionnaires were responded in one year from the implementation of ZBB. One of the main aims of the survey was to determine a difference of opinion between budget directors who were inclined to advocate for larger budgets for their agencies and legislators or analysts who gravitated towards reducing the budget. The study concluded that the majority of budget advocates saw fewer tangible benefits from ZBB, in stark contrast to the views of the legislators and analysts surveyed who saw significantly more positive outcomes. Budget advocates did, however, acknowledge that ZBB encouraged greater involvement by managers in the budgeting process, but cautioned that ZBB utilized a significant amount of their time. Legislators, on the other hand, were strong in their beliefs that ZBB allowed more effective dissemination of information regarding organizational operations among parties that are involved in the formulation of the budget. In addition to this, they viewed ZBB as improving cohesiveness by the movement of personnel and financial resources among agency functions and avoiding instances where wasteful, duplicate operations are taking place. They also saw that the implementation ZBB resulted in agency funding of existing programs more in alignment with the present level of effort.

Sherlekar and Dean (1980) oversaw a comprehensive appraisal of the advantages and disadvantages of the zero-based budgeting method during the inaugural year of its introduction in the federal government. Questionnaires were distributed amongst the various agencies in order to test their hypotheses. A set of eleven major criteria was constructed in order to test the applicability of the ZBB process and measure its performance among the various agencies. A score-based model was devised to judge the effectiveness of the ZBB both within each agency, as well as across the federal government. Results of the three aspects of ZBB were ranked by the degree in which each aspect achieves the greatest benefits. Priority ranking of agency programs carried significant weight, followed by the degree to which ZBB translated into increased participation of management in the decision making process, followed by conducting trade-off within and across programs. The study found that adoption of ZBB led to a significant increase of participation of management in the budget process. This resulted in stronger ties between all levels of management and greater clarity regarding the objectives and priorities expected of the various programs. The use of ZBB did not result in a significant reduction in costs, but did move resources to the activities possessing the highest priority. Cost-benefit analysis was stressed over "equality" and as such higher priority activities were given their appropriate share from the organization's financial pool. Echoing the opinions of conclusions of other studies, the consensus among the federal government was that ZBB required an excessive proportion of their time.

Wetherbe and Montanari (1981) made a considerable effort to incorporate ZBB into the firms planning process. Data relating to computer centers were analyzed at three universities with one computer center being used as the test group and the remaining two designated as controls. The results of the study present a strong case for the integration of ZBB into firms' planning framework.

Boyd (1982) looked at budget data from Tarleton State University spanning two years where a zero-based budget was in operation and compared the data with the budget data of the previous eight years, which utilized a standard, non-ZBB-based budgeting system. A least squares regression line was calculated to identify the line best fit for the span of the eight years, where a non-ZBB-based budgeting system was in place. The line was then projected for the next two years to predict what the theoretical budget allocation would have been had the standard budgeting system remained in operation. A standard error of estimate was calculated for each of thirteen areas. The projection da-

ta were then compared with the actual budget data collected from two zero-based years to determine if any statistically significant shifts in funding had occurred. A statistically significant change was defined as a change greater than two standard deviations from the computed mean, in this case, defined as the projected regression line. The data, spanning a ten-year period between 1968 and 1977, concluded that zero-based budgeting failed to have a statistically significant effect on the distribution of budget funds for the Texas-based state university.

Moore (1980) reviews the experience of the municipalities of 35 cities nationwide that adopted zero-based budgeting methods. Questionnaires were delivered to the municipalities of 425 cities, with 205 responding. Of the 205 municipalities that responded, thirty-five had applied the zero-based method to design their budgets in the past or were currently doing so. The study reported that city councils appeared more heavily involved in the process when compared to the behavior of legislative bodies in non-municipal jurisdictions. The respondents also believed that ZBB succeeded in significantly reducing some budget allocations and managed to slow the rate of increase in others. In accordance with the findings of other studies, greater involvement by all levels of management in the budget-making process was observed. The biggest drawback reported was the time-consuming nature of the ZBB process due to the substantial amount of paperwork demanded by ZBB.

Minmier and Hermanson (1976) sought to assess the efficacy of ZBB procedures in the Georgia State Government. Questionnaires were distributed among department heads and budget analysts to gather their experience with the application of zero-based budgeting to the state government's finances. Interviews were also conducted when possible. A majority of the department heads that were questioned voiced their disapproval of the fact that ZBB was introduced without their prior input. Among those questioned, 15% reported a reallocation of state funding as a direct outcome of using ZBB. Budget analysts saw the experience of the state government with ZBB in a relatively more positive light, with 52% of those surveyed reporting that department heads were more pro-active in their involvement in the budgetary process and 68% reporting a significant improvement in the quality of information available for managers to base crucial budgeting decisions on. The authors behind the study cite three main advantages to the deployment of zero-based budgeting over conventional approaches to budgeting. The first point of improvement that ZBB possesses over conventional approaches to budgeting is the creation of financial planning process, which guides the design of the fiscal year budget. This process takes full acknowledgement of the state limited financial resources and is intended to ensure that those scarce resources are allocated in the best possible manner according to what the most important goals and objectives of the state are. Secondly, the authors emphasize the noticeable improvement of the quality of management information available to all levels of management, as well as analysts, due to the use of ZBB. The clarity and comprehensiveness of management information that ZBB has afforded managers and analysts alike has provided them with considerably more insight into the effectiveness of state government. Finally, the authors argue that the use of ZBB has led managers to take a more proactive, anticipatory approach to the budgeting process. This is due to the demands that ZBB places on managers, such as requiring management to design and rank decision packages by order of priority, resulting in increased input into the budgeting preparation process. As is common with the findings of numerous studies, the authors acknowledge the usage of zero-based budgeting in Georgia as placing increasing strain on employees due to the significant time and work required in preparing detailed, justifiable budget decision packages. This drawback is, however, a predictable aspect of ZBB due to the higher degree of detail in planning that is inherent to ZBB.

2. RESULTS

A comprehensive review of the literature provides a compelling case for an evidence-based zero-based budgeting implementation by revealing the mistakes made by public organizations in their implementation of zero-based budgeting systems. The significance of this retrospective review of real-world experiences with zero-based budgeting

http://dx.doi.org/10.21511/ppm.17(2).2019.25

systems consists in its ability to demonstrate the importance of proper compliance with the fundamental rules of zero-based budgeting systems. It highlights the mistakes made, and thus, the mistakes to be avoided through proper compliance with the fundamental rules of ZBB. Secondly, it emphasizes many of the benefits that were observed when zero-based budgeting systems were put into practice. Greater involvement by all levels of management, as well as reductions in budget allocations, were just some of the benefits that ZBB offered to the institutions that implemented this type of budgeting system. As such, this study highlights some of the expectations that organizations that are considering the implementation of zero-based budgeting can have of ZBB.

The findings of this review prompt the author emphasize proper compliance. Compliance, and consequently risk minimization, is ensured via the observation of the following steps that are crucial in the successful design and implementation of a zero-based budgeting. An outline of the necessary steps in conducting a zero-based budgeting is provided below with the intention of setting forth clear and concise guidelines on the implementation of a successful zero-based budgeting system.

2.1. Establishing goals and objectives

Under the zero-based budgeting system, all levels of management are expected to participate in the budget preparing process. In the case of top management, it is their duty to commence the budget preparation process by effectively communicating the goals and objectives of the organization to all levels of management. Following this communication, lower level management will then consult with top level management on which programs they believe are indispensable to the realization of the goals and objectives of the organization, thus engaging with upper management by providing their own input. Thus, with upper management taking the initiative, a strong communicative and informational loop is fostered between upper and lower levels of management. This early involvement by upper management in the planning process helps ensure that upper level managers are fully aware if the allocation of scarce financial resources is in alignment with the organization's goals and objectives.

2.2. Identifing decision units

Perhaps the most crucial step in the ZBB process is the proper identification of decision units, or activities that are verifiably independent and do not overlap with other activities. They are broadly defined in that they can be programs or activities, organizational units and cost centers. Organizations should also be aware of the risk of excessive division into decision units. One direct consequence of such excessive division would be the excessive paperwork and time consumption that will afflict the organization that needs to review more decision units than necessary. At the same time, organizations that too broadly define decision units will deprive themselves of the ability to meaningfully review the work being carried out (Sarant, 1978). Under normal circumstances, a decision unit would be included in a single account and budget sub-function and realistically reflect the program and organizational structure of the institution. Mission and program statements may serve as an invaluable tool in guiding managers on how best to divide an organization into separate decision units (Shelby, 2013).

Once the organization is divided into various decision units, the manager for each decision unit has to defend or justify each specific activity. Under zero-based budgeting, precedent is not a legitimate justification for a decision unit and thus the reason why managers have justify specific activities "from scratch". Without starting from point zero, the design of zero-based budgeting would not be possible.

Decision units should also have reasonable, realistic, specific and measurable objectives and goals. It is important that top-level management take an active role in setting objectives for lower managers to be guided by. This will help ensure that:

1) lower-level managers have a clear road-map of what the organization's goals are and use that framework as a guide for their decisions;

2) managers are able to prepare decision packages that accurately reflect and justify the work to be performed and the resources that will be required for the successful completion of their work;

3) middle-level managers understand and can appropriately evaluate the budget request.

The effective identification of objectives is extremely important, because they can help strengthen the case for specific budget proposals and as such are useful part in the preparation and submission of budget estimates, proposals and memorandums. Due to the strength of the relationship between the objectives of decision units and budget requirements, realistic objectives are an integral part of any budget proposal. Finally, it is imperative that objectives are measurable so that evaluation of program or decision unit outcomes can determine whether the actual performance of a given program was as expected. A lack of measurable goals would nullify any ability of management to adjust budgets according to performance, as management would be unable to exercise rational judgment on program outcomes. However, with measurable objectives in place, managers of decision units can focus on alternative ways to meet their objectives and conduct cost benefit analysis to determine the best alternative strategy in the case when outcomes were unsatisfactory.

In public sector management, performance measurement is simply putting the efficiency and effectiveness of past actions in quantifiable form. Efficiency is simply the ratio of outputs to inputs and effectiveness corresponds to the alignment of actual output with the goals and objectives of any given organization. The efficiency values in any given program and the activity units that make up that program can be the same. Strong performance of the measure sheds light on the wise employment of resources by an organizational unit manager. The effectiveness measurement seeks to assist management in evaluating whether the results of a program or activity are in strong alignment with its objectives. It is for these reasons that both measurements play a crucial role when evaluating a given unit proposed budget in the decision package.

2.3. Development of decision packages

The decision package is essential to the ZBB system. It is the document that identifies and describes the function of each decision unit in such a format that management can evaluate it, compare it in ranking with other decision units that are competing for funding, and consequently decide whether to endorse any given decision unit by providing funding (Pyhrr, 1977). Two characteristics of decision packages are especially important to ZBB as management tool (Mueller, 1981). First, lower-level management officials are directly involved in the process, since they prepare the initial activity packages. Second, the packages provide detailed information about the heart of any organization's operations.

Decision packages serve to supply decision makers with important information regarding activities and programs, what these programs seek to accomplish; how these activities will achieve their intended goals, provide cost-benefit analysis, workload and performance measurement; alternative strategies for goal achievement; and varying levels of effort available to achieve stated objectives (Tyer, 1977). Hentschke (1978) asserts that decision packages would usually comprise the purpose of a given activity, highlight the consequences of failing to perform it, list measures of performance, specify an alternative course and outline the costs and benefits of such an activity. Austin and Cheek (1979) outlined the following key elements of a decision package:

- the objective or goal of the effort;
- a brief description of the proposed approach;
- alternative ways considered but rejected;
- the costs and benefits of the proposed approach;
- an assessment of what will happen if the package is disapproved or not funded.

Schulze (1988) specifies the relevant information that decision unit managers must prepare:

1) to identify and define major activities and/or projects and their specific purposes;
2) to determine alternative approaches that would achieve the same intended goal/goals;
3) to choose the most practical approach towards achieving a decision unit's goals;

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4) to establish varying levels of effort for the chosen alternative;

5) to analyze the costs and benefits of each incremental degree of effort; and

6) to describe any possible consequences of not executing the alternative strategy.

These packages are formulated at the lowest level of management for each current or proposed function. In each decision package, it is the duty of the unit manager to describe in behavioral terms both the program operations at work and the goals that performing a given operation will help attain.

Prior to the preparation of decision packages by the unit manager, the manager is required to follow the budget guidelines set forth by the higher levels of management. The decision unit manager must prepare a set of decision packages that will cumulatively amount to the total potential budget request of the decision unit. Each package should emphasize the potential benefits of funding the package on the ability to meet assigned objectives. Decision packages are the primary tool for effective budgetary review, analysis and decision making within the organization. Two types of analysis are warranted at this stage (Sarant, 1978):

1. The manager must examine alternatives methods that will help achieve major objectives. Managers should identify and evaluate these alternatives and decide which alternative strategy would most adequately achieve objectives. Under normal circumstances, the best alternative is used as the basis for the second type of analysis.

2. The manager would then identify different funding levels and their effect on the capability of the activity to perform its stated objectives. The reasoning behind the identification of different funding levels and their results is to provide information on:

    a) where reductions from the total budget request may be made, in other words, the cuts which cause the least amount of harm;

    b) the potential benefits that can be achieved by increasing spending;

    c) the effect of such additions and reductions.

Each decision unit manager must prepare a set of decision packages that specify minimum, current, and incremental levels of funding and performance. The minimum level is defined as the most basic level that is necessary to keep a program afloat. Any level below this will lead to the program termination. Additionally, the minimum level may not be in the interests of the programs or decision units' desired objectives. The current level of service is the level that will be included in the decision package if the proposed budget program or activities are carried on without any modification to the current spending level. The incremental level may be described as any incremental level between the minimum and current levels of spending.

The manager would then begin preparing a Decision Unit Overview for each and every decision unit that makes up the total budget. The Decision Unit Overview explores the following characteristics of the decision unit (Draper & Pitsvada, 1980):

1. Identifing information. Each overview should describe each particular unit in a manner that distinguishes it from all the other units in an agency.

2. The long-term goals of the decision unit.

3. The major objectives of the decision unit. It is important to note here the often continuous and long-term nature of objectives.

4. Alternatives. Program managers should evaluate the various competing methods of performing a given program or activity.

5. Accomplishments. A decision unit overview should show any given evidence, if available, for a given decision unit's current or historical success. This analysis should utilize both quantitative and qualitative measures.

Finally, managers would then prepare a detailed analysis of all alternative possibilities and solu-

tions to achieving objectives and then prepare decision packages for every given level. This analysis should make available the following information:

1) any available information relating to the decision unit and its budgetary structure;

2) a clear description of the nature of the activity to be performed and the services that would be provided at each level;

3) the short-term objectives that need to be conveyed as well as the benefits that will result due to the given spending or performance level;

4) impact on major objectives: the manager should assess and describe the impact on the major objectives of both incremental and cumulative resources;

5) resource requirement: the manager should estimate the amount of funds and personnel required to accomplish the decision unit's objectives;

6) remaining information. any information available that would be helpful to decision makers when evaluating various decision packages that should be included in the analysis.

2.4. Ranking of decision packages

Ranking is the process by which a manager reviews all decision packages and attaches a relative priority to each given package. The manager would then prepare a listing table for all decision packages ranked in descending order of priority using the level at which each package was designed. A running cumulative total is created to record the total budget request. This is equal to the sum of each package plus preceding packages.

Versel (1978) states that the extent of participation in the ranking process rests on a combination of three factors. The first factor is the quantity of decision units under review and the quantity of decision packages that they generate. The second is the methodology behind the ranking process and the degree of complexity of its elements, steps and procedures. The third factor is the comprehensiveness and clarity of "front end" policies and priority guidance.

Sarant (1978) has put forth four ranking rules for decision packages:

1. Ranking rule 1. The minimum level for a decision unit is always ranked higher than any increment for the same unit. The minimum level represents the level below which the programs or activities cannot be performed adequately and effectively.

2. Ranking rule 2. A minimum level package for a given decision unit does not need to be ranked higher than any other decision package of other decision units. Once the subordinate packages are reviewed and ranked, the consolidation process is finalized and no adjustment is necessary.

3. Ranking rule 3. The agency head should determine at which review level(s) decision packages should be consolidated into a lesser number of packages before submission to the next higher review level.

4. Ranking rule 4. In all instances, a minimum-level consolidated decision package should be prepared. The package may or may not include information from each of the minimum level packages from the decision package set being consolidated.

Cheek (1977) provides the following recommendations for facilitating the ranking process.

1. Do not waste time over priorities. Programs ranked high, irrespective of whether their merits are legal or economic in nature, are certain to be approved and funded.

2. Do not concentrate on the decimal accuracy of benefits. Comparability takes precedent over accuracy in package analysis and ranking.

3. Remain conscious your strategic objectives throughout the ranking process.

4. Remain flexible. The lack of modification may highlight possible oversight of any problems as to how decision packages were ranked.

5. Above all follow the KISS principle. Avoid letting your budgeting technique from becom-

http://dx.doi.org/10.21511/ppm.17(2).2019.25

ing overly complicated particularly when formulating decision packages and ranking them.

There are three popular methods that can be used when ranking decision packages. The first one is widely referred to as the voting system. It was first conceived and used by Texas instruments followed by the government of the state of Georgia and was developed by Peter Pyhrr. It is best suited for organizations that assign a committee to carry out the ranking process. Its main strength lies in its usefulness in dealing with high number of funding cases. After prolonged discussion of the merits and drawbacks of the decision packages under review, members of the committee vote on the overall merits of each package. The votes are then tallied and the ranking continues until a high degree of agreement is achieved (Dillon, 1979).

The second method is known as the major category system and is a variation of the voting system. Under this system, packages are ranked according to the number of votes each package received. However, voting occurs within each category so that voters can determine which package has the highest merits within each given category. Some of the categories may include but not be limited to: Legal Required, Most Desirable, Less Desirable, and Not Desirable. The final rankings would include all categories until funding has been depleted. The third method is called the single criterion approach. This approach is widely accepted as the simplest of the three. It is best suited for dealing with a single program or programs which are similar in nature. This method evaluates all decision packages against a single given criterion. This criterion may be effectiveness, the cost/benefit ratio, growth rate or various other important measures. Decision packages are consequently ranked in descending order of priority after each package performance on the given criterion is measured (Chen, 1980). This approach disregards programs that are legally mandated but perform poorly according to the chosen criterion. Following the completion of the ranking process, the cutoff point is applied and projects below that cutoff are re-evaluated and may possibly climb or fall in rank according to their performance.

2.5. Preparing detailed budgets

This stage of the zero-based budgeting process is an extension of the previous stage. Following the ranking process, funding is then appropriated to the decision packages that scored high enough in the rankings. This appropriation is subject to legislative review and possible modification before any funds are distributed. If a large discrepancy exists between the legislative appropriation and the budget request, the necessary budget decisions are made according to the respective rankings of decision packages. If the reduction concerns a specific program area, the organization can then identify the relevant decision packages and make the appropriate reduction in the budget.

The budget highlights the approved decision packages for each program and organizational unit. The decision packages specify the appropriate activities and performance levels that are needed to be achieved for each program and organizational unit. This aids the organization in reviewing the budget and operational results during the year.

2.6. Performance evaluation

The evaluation process assesses and reviews the services delivered and the benefits provided by the program. It reassesses the objectives of the program and audits its performance according to the critical measures of efficiency and effectiveness. In conducting a performance evaluation, a manager intends to achieve the following (Chen, 1980):

1. To verify the merits of the objectives behind the program.
2. To determine whether any viable alternatives exist.
3. To determine the practicality of the chosen approach.
4. To provide the necessary quantitative standards for measuring performance.
5. To provide a guarantee that proposals provided by the program are realistically delivered.

http://dx.doi.org/10.21511/ppm.17(2).2019.25

Stonich (1977) suggests the following methods for evaluating performance:

1. A monthly financial review of both decision units and ranking units. This is traditional financial comparison of budget and actual expenditure. It focuses solely on costs expanded.

2. A review of the quarterly output of each decision unit and ranking unit. This review of the actual output against projected output is integral to the successful use of the system. Performance measurements form the basis for this evaluation.

3. Quarterly (or ad hoc) plans and budget revisions that are made for both decision units and the organization.

These reports serve to assist decision makers in the identification of duplications of activities, thereby providing opportunities to combine units performing redundant work. Management would then begin writing recommendations that propose effective modifications and improvements for the following year. The main purpose should be to identify and modify aspects that hinder the ability of the ZBB to be as contributory as possible with each instance of its use. A comprehensive and objective evaluation must also include interviews with participants, focusing on their expectations from the process. This insight gained from channels should greatly improve the ZBB process effectiveness in the subsequent budget cycle.

DISCUSSION AND CONCLUSION

In recent years, the techniques of zero-based budgeting have been advanced as a potential solution to the budgeting problems. Rather than basing this year budget on last year budget, as conventional budgeting often does, ZBB calls for every project to be examined as though they were being put together for the first time. Project managers are required to justify every dollar being requested from the ground up, with last year's spending not acceptable as a justification for next year's allocation. ZBB theory calls for complete establishment and review of programs and activities including a search for alternatives to accomplish the major objectives. The ZBB is designed to overcome certain management problems associated with the federal budget process. The ZBB process encourages all layers of management to participate in analyzing and prioritizing funding requests that are generated from the ground up. ZBB is now experiencing a resurgence in several Asian countries such as UAE and Malaysia as they attempt to tackle widespread over-spending among various government departments.

The purpose of this research has been to further explore the steps that need to be undertaken in designing an effective zero base budgeting system. Zero-based budgeting is a system of budgeting designed to incorporate a planning phase into the budgetary process. It is employed to obtain approval for the operation of programs requiring specific resources. This compels an organization to establish goals and objectives that span the whole organization as well as a set of goals and objectives for decision units to work towards. This can only be accomplished through the use of performance evaluation that takes into account the important measures of effectiveness and efficiency. In light of this, it is important to properly dissect the organization into independent decision units. This may be a single activity or a group of activities that may be properly evaluated and planned for. In order for this to be accomplished, each decision unit manager needs to prepare a decision package for his activity(s) that takes into account different possible levels of service. The decision package statement should contain different sources of information such as objectives of each decision unit, a description of the activity(s), work-load performance, projected cost, funding sources as well as any alternative methods of performing those activities. Decision packages that focus on specific functions within each decision unit would also need to be ranked. The ranking process typically requires the listing of decision packages in their respective degree of value to the organization. Ranking results are the main source of information when deciding the best possible alloca-

http://dx.doi.org/10.21511/ppm.17(2).2019.25

tion of available funds. Budget preparation would then need to be made based on the standing of the various decision packages. Throughout the fiscal year, several measurements should be made to assess the performance of decision units in achieving their objectives. This should be carried out using both quantitative and qualitative analysis.

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