Adaptable Computer-Based Budget Control System for Sustainable Economic Strides

Igboji, Kingsley O* & Ogbu, Nwani H.
Department of Computer Science – Ebonyi State University, Abakaliki
e-mail: otubok@yahoo.com

Abstract
Budget creates work plan that stipulates statutory allocation of funds geared towards accomplishing projects or various events and/or programme schedule in an organization. Arriving at a good budget is a herculean task to both private and governmental agencies, but with proper analysis and monitoring system a balance is struck. High-tech solution systems are far reaching and hard to come-by. The absence of this, accounts for indiscriminate cases of budget failure, wanton discrepancies and undue variations obtained in financial administration of organizations. Hence, the need for Adaptable Computer-Based budget system that simplifies the complexities associated with the task of budgeting. This Computer-Based system is built with ingenuity to make informed decisions predicated on hands-on facts and tested figures that engender accuracy across transactions. Object-oriented methodology is used along with the strength of Visual Basic 6.0 and Microsoft Access to create the needed interactivity. It analyzes budget from its estimated allocations, monitor the budget by appropriately evaluating its implementation processes and upholds requisite security issues. Here comes the antidote to pressures and squabbles around budget implementation.

Keywords: budget, appropriation, hands-on, implementation, high-tech, adaptable, variance.

INTRODUCTION
Budget creates work plan that stipulates statutory allocation of funds geared towards accomplishing projects or various event and/or programme schedule in an organization. It portends a concise financial appropriation/management tool that makes for guaranteed delivery on target. Arriving at a good budget is herculean indeed to both private and governmental agencies, but with proper analysis and monitoring system a balance is struck.

Therefore, the drive here is to present credible and reliable way out of indiscriminate cases of budget failure, wanton discrepancies and undue variations. Adaptable computer-based system incorporates an error handling mechanism that streamlines the operations, giving output with wide range of influence and acceptability. Adewumi and Garba (2006), the increasing use of electronic means for data transfer has extended the need to protect vital information.

This system helps to create the baseline against which actual results can be compared. In other words, it act as a basis for measuring performance in organizations and help in directing the activities of an organization – hence giving earlier signals on variances sufficient time to take corrective actions.

Strategic Reviews
Extensive use of budgeting has been documented in studies of Scarborough et al., (1991). They have largely highlighted the significant emphasis, which diverse types of organizations in various countries, put on budgeting systems, as key elements of management control. Increasingly, however, there appears to be a paradigm shift in the management accounting literature, while there are still advocates of budgeting, critics argue
that the traditional budget is no longer appropriate given changes in technology and the rapidly changing business environment (Kaplan, 1988, 1990; Johnson and Kaplan, 1987).

However, proponents of budgeting argue that budgets have several important roles. Blocher (2002), for instance argued that budgets help to allocate resources, coordinate operations and provide a means for performance measurement. The effectiveness of a budgeting system is judged by its success in moving the organization toward its vision, a vision that usually requires financial stability and strategic change (Dickmeyer, 2004).

MATERIALS AND METHODS
The system has two different applications using the same database. These are the Windows application (thick-client) and Web application (thin-client). As window based application, these tools are most suitable and are accordingly deployed: Ms-VB6.0 at the front end for EXE files, Components Object Model (COM) facilitates server-side processing or add-in modules, DLL files, and Ms-Access database model at the back end. Also, Data flow diagram DFD and Use Case diagram are relevant tools used to express data movement at various levels of analysis and operation.

Structural and Procedural Analysis
Analysis ensure the process of evaluating all aspect of a system or an event so as to get a clear understanding of what is obtained – making way for informed decision. Adequate implementation of budget can be enforced, and undue variance in budget can be tracked and tackled through analytical monitoring measures. According to Briston (1981), financial control and monitoring ensures efficient and cost-effective program implementation within a system of accountability. In most establishments, almost every segment of their budgets are manually handled giving room for all kinds of avoidable errors, unguarded alteration and flagrant falsifications due to unauthorized access. Typically, transaction flow in such an awkward approach can be represented in figure one below, to illustrate what typically obtains in manual budget operation thereby creating the lapses enumerated above.
Fig.1: Typical Manual Transaction Flow

On the other hand, a dynamically robust system that can effectively monitor the implementation of a budget for optimum result is ideally represented in the flow diagram of figure two below.

Fig.2: The Flowchart for Adaptable System
In a budget, each item is tagged with corresponding fund demand at every stage. Identify an item and analyze it by verifying the status to ascertain authenticity of figure to value – this unveils detailed facts that justifies and validates items.

Core functional components of Adaptable Computer-Based Budget system encompasses the administrator, fund estimation, budget analysis, evaluation and monitoring, which are respectively handled by expertise module analytically posited in figure three below. A detailed analysis is explored to examine and enforce control of variance and discrepancies in budget implementation processes.

![Use Case Analysis Diagram](image-url)
Architectural Design and Implementation

Here captures the integration of various activities that make up the system. This system maintains central control valve that interlink and coordinate all activities associated to it. In Vivek and Ramaswamy (2005), computer-based accounting system record and report the flow of funds through an organization and produce important financial statements such as balance sheets and income statements. So, the architectural design represented in figure 5 below shows the overall activity process involved in the analysis and monitoring of budgets. Each segment designated below undertakes pertinent expert role.
Various unit of an establishment as applicable are meant to submit budget proposals to central budget office. They equally submit their monthly report of transactions, whilst budget monitoring team on the other hand submits her report on findings about the implementation of the budget in the various units for evaluation so as to track down possible frauds and recommend necessary measure to forestall further occurrence. An evaluator verifies estimated allocations of fund and draw up final realistic estimate expected for the year and save the report. Budget analyst scrutinizes all proposals submitted with a view to validate its desirability and accordingly save accepted budgets in database. But rejected proposition as shown in figure 5 below are referred for recommended amendments.

Fig.5: Budget Analysis Window

DISCUSSION OF RESULTS
Adaptable Computer-Based Budget system creates the consciousness of informed checks over resource utilization hitting performance expectation thereby controlling cost and variance. The interface presents a rallying point that unifies the service of budgeting as an adventure for real-time profiting. Relevant details regarding a budget are determined as it captures transaction’s identity.

Fig.6: User Interface Window

Data Input Design

This platform offered by figure 7 below is meant to enables a user to transmit information regarding aggregated values of budget estimate into the system for processing. Each unit itemizes the needful and galvanizes resource data due for it. Mbam (2010) says that a well structured data makes for easy accessibility thereby simplify software program routines that uses the data. Pre-determined budget items and values are submitted via this form; it can be retrieved and edited.
Fig. 7: Budget Proposal Submission Window

**Monitoring and Evaluation Process**

Budgets facilitate coordination through communication of information about plans to managers and employees (Nassolo, 1997). But proper monitoring and control is critical to realizing its objectives. It serves a deterrent process against misappropriation of funds in terms of procedures and rules that establish the boundaries of financial behaviour. This form/window aids the all important action of calculated checks on routine transactions that span a budget catchment – deviations from specifications already domiciled in database are easily detected.
Monitoring actual revenue or cost data is done by way of continuous comparison of actual performance with the budgeted performance and regular reporting of variances to the responsible officers. This helps in asserting the reasons for the differences between actual and budgeted performance and taking the suitable corrective action.

**CONCLUSION**

Budget computerization is a worthwhile venture that must be embraced in keeping with international best practice and as sine qua non to profit maximization. It serves as financial and management control of resources, ensuring appropriate co-ordination of organization’s activities (Otley, 1987). This system has proved to be a credible resort in building a sustainable and robust financial base for an organization. It provides a pathway to substantially analyze, monitor and control implementation process for optimum results. Moreover, the system is built with ingenuity to make informed decisions predicated on hands-on facts and tested figures that engender accuracy in all transaction. It is a High-Tech driven system equipped with several facilities for information storage, faster speed of processing, error-proof and precision mechanism among others.
REFERENCES


