

ARTICLE - English

**PROCESS MANAGEMENT
SYSTEM
IMPLEMENTATION,
MONITORING AND
ASSESSMENT OF THE
BUDGET - UTN**

Andrea Verónica Guevara Lora

"MODULE PROCESS MANAGEMENT IMPLEMENTATION, MONITORING AND ASSESSMENT OF THE BUDGET UTN"

(October 2011).

Guevara Andrea, Técnica del Norte University
Ibarra-Ecuador

Summary: At present there are few budget management systems to measure the cost of a budget cost centers in an organization and to integrate administrative processes, for this is due to consider different factors such as organizational structure, the complexity of the operations, management philosophy and infrastructure. So, for this research takes the above aspects in the development of institutional management model basis for the design and implementation of the budget module as part of Enterprise Resource System ERP², and also for software development using the Oracle Platform and Methodology RUP³ run at the Técnica del Norte University.

The present project is fully installed and allow the Chief of Budget of the Technical University of North keep track of income and expenditure budget by cost center during its annual term, following the current legal basis of public sector budget management and guidelines university administration and its regulations.

The system provides reports to measure the usefulness and evaluate the budget for the respective correction or guidance in making decisions.

To meet the goal set each user involved must meet the activities outlined in the procedures manual, ensuring the quality of the information entered and the correct operation of the Process Management System Implementation, Monitoring and UTN budget settlement that has been implemented and implemented to contribute to the development and productivity of the Técnica del Norte University.

I. INTRODUCTION

The Process Management System Implementation, Monitoring and Budget Settlement Phase II UTN as Budget Module is a software tool that allows budget movements affecting the budget level cost centers in both revenue and expenses (budgetary cost) during the fiscal year until its liquidation in which it is done: budget changes, budget changes to the annual procurement plan, certifications and budget commitments, thus allowing a comparison between actual and budgeted carrying a monthly budgetary control through management reports allows assessment of both institutional budget by cost center for decision-making is an important part of financial management, the annual plan also includes purchasing and rescheduling following the legal basis current budget management and public sector university management guidelines and regulations.

This expenditure control plan (Annual Procurement Plan) determines to each area of the Technical University of Northern aware of their monthly spending through the system, the management is done by quarters with Solitude by Electronic Procurement Module procurement and budget availability request from the Head of Procurement responsible for initiating the buying process.

Allows the institution to obtain a budgetary cost centers at cost is emphasized that its success is express

¹ **Cost:** The amount of money it costs something, or make or produce in the budget if the starting value.

² **ERP:** Enterprise Resource Planning Systems.

³ **RUP** (*Rational Unified Process*) software development process and together with the Unified Modeling Language UML is the most widely used standard methodology for analysis, implementation and documentation of object-oriented systems.

responsibility of the administrative-dependent planning and budget control.

Develop and implement a corporate software application that allows control of the budget of income and expenses as cost centers to measure the degree of compliance with institutional goals and a budget adheres to the current legal basis of the budget management the public sector and university management guidelines and regulations

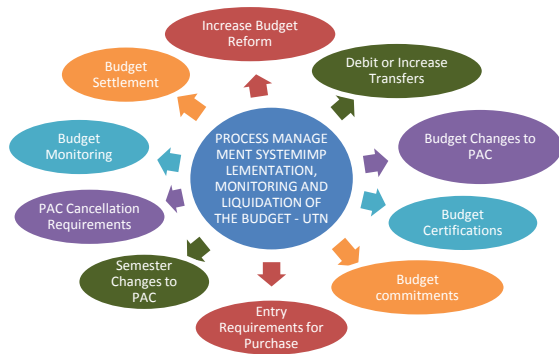


Figure 1: Outline of Project

The process of managing the implementation process, monitoring and closure of the budget UTN is composed of the following activities:

- a. Guide guidelines to follow for the flow of paperwork at the request of the available budget or reprogramming PAC (Manual Procedures).
- b. Timetabling of activities within the Budget Module.
- c. Registration and / or updating parameters in the system.
- d. Budget Changes to CAP (Increase Budget Reforms to the PAC and Expense Fund Transfers Debit or Increase for Purchase).
- e. Budget Amendments (Amendments and Budget Increase Funds Transfer Debit or income or expenditure increase).

- f. Fixing budget ceiling for cost centers or projects funded.
- g. Entry Requirements for Purchase.
- h. Automatic generation of expenditure items for reforms to CAP budget increase from revenues and income requirements for new items to the Plan.
- i. Automatic generation of destination spending items of expense transfers of funds increase by debit or Purchase from income and income requirements for new items to the Plan.
- j. Semester to change pending requirements apply to the Annual Procurement Plan.
- k. Requirements pending cancellation request the Annual Procurement Plan.
- l. Certifications and budget commitments.
- m. Control and monitoring of the budget by cost center budget level of income and expenses.
- n. Liquidation of the annual budget.
- o. Management reports monthly budget execution, Annual Procurement Plan, Budget Movements, Reprogramming the PAC.
- p. Integration Modules Manufacturing Process Management and Budget Approval Proforma, Procurement, Accounts Payable, Treasury and Banking System Enterprise Resource Management ERP-UTN.

It is a tool designed in response to the need to visualize and analyze information in secure and reliable information for decision making.

Thus emerges the Process Management System Implementation, Monitoring and Budget Settlement UTN as a quality software solution automates the process of implementing the budget cost centers in a manual of procedures to give effect to the objectives and planned goals and whose information comes to the job site promptly upon request, using a WAN with a database accessible from the various nodes of the

network and generate user-friendly interfaces and simple.

II. POSITIONING

This system will allow the UTN automate the control of activities related to budget execution management level cost centers, providing the user with budgetary assessment is an important part of the management of financial management, which will be a quick and easy access to data through user-friendly graphical interfaces. In addition, data accessed will always be updated, which is a very important factor to obtain real time information.

The system is providing a solution to the following drawbacks of the Chief of Budget of the Técnica del Norte University:

- The Chief does not have a computer system that carries the budget cost centers, so that you can't get a budget assessment level of detail as a basis for financial projections in the development of the next budget proforma rather general, and also can't enhance decision-making in budgetary level cost centers.
- There are processes that are performed manually.
- There is no integration between the requirements requested by the agency and the budget.
- Lack of a timetable for regular periods of application needs (available budget) for the cost centers to Financial Management and therefore to the Chief of Budget (In some cases invoices to purchase order issued prior to availability).

III. System diagnostics.

The Process Management System Implementation, Monitoring and Budget Settlement UTN have the following benefits providing solutions to the problems encountered and acquired needs as Head of Budgets:

- Costing budget cost centers.
- Measuring the degree of compliance with budget cost centers.
- Control deficits.
- Recording transactions starting level budget ensuring cost center budgeting.
- ESIGEF System Integration in the main guidelines and budget processes, budget structure, budget modifications and certifications.
- Greater participation of representatives of cost centers in the budget planning and budget execution, using the annual procurement plan.
- Regulate the process of applying for certification in the administrative budget for the procurement of goods, works, services and consulting.
- Check the certifications that are illiquid budget.
- Having a monthly spending plan (Annual Procurement Plan) prior to its execution.
- Knowing the annual procurement plan for each cost center and reprogramming.
- Allow two distinct processes in the allocation to the budget level of expenditure based on the admitted requirements: Reform of the CAP budget increase (expenditure budget) and Fund Transfers Debit or Increase expenditure (expenditure budget in the destination) and sent in their approval of these requirements to the Plan.
- Effective monitoring of resources collected by the University through the revenue budget schedules for the effective implementation of expenditure by cost centers.
- Management reports monthly budget execution at the level of cost centers and / or institutional, allowing the evaluation budget.

- Reliable information for college and external financial institutions requesting budget information management reports

Below is an outline with sub-modules that comprise the project:

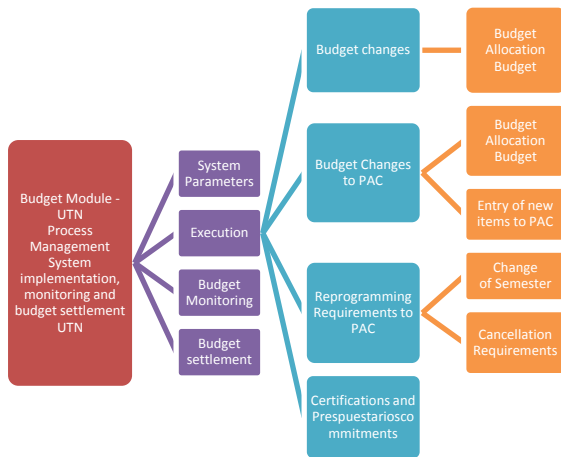


Figure 2: Outline of Project

IV. SYSTEM DESIGN ANALYSIS.

Based on the process automation plan encouraged by the Department of Computer Science Technical University North and reengineering of processes performed at the headquarters budget determines the creation of the Process Management System Implementation, Monitoring and UTN budget settlement as part of the Enterprise Resource System ERP_UTN for the proper management of activities related to the university community.

Based on information collected from the various meetings with stakeholders were identified on the front-end⁴ Departmental Heads and the back-end of the⁵ officers of the Chief of Budget, the latter with the ability to interact on both sides, then outlined the main activities:

FRONT-END

- Entry Requirements for Purchase (Reform Planned budget increase).*

- Enable input period for planned reform requirements (Functional System Manager).
- Entry Requirements assigned based on the roof in reforming: item, quantity, month to ask (to budget monthly period), unit price, total price, item description, justification for the request; also the source of funding that will cover the spending.
- View the items entered in this period.
- Disable time entry requirements for the Planned Reform PAC (Functional System Manager).

BACK-END

- Organization of Activities*

- Management activities for the calendar year.
- Periods for entry requirements for planned reforms to the CAP.
- Management periods of annual reprogramming process (income transfer fee requirements by purchasing and centralized reforms, changes and cancellation requirements semester).
- Options opening, reopening, extension, and closing periods of the activities.

- Increase Budget Reform*

- Reforms centrally planned budget increase to the PAC.*

- Budget Allocation by Source of Funding.
- Revenue Budget.
- Establish budgetary ceiling for cost centers or projects funded.
- Entry Period Requirements (Reforms Planned) or Annual Reprogramming (centralizing reforms).
- Income Requirements for Purchase.
- Approval of the Reformation.
- Generation expenditure budget items based on the requirements entered in the Reformation.
- Requirements increase the PAC.

- Revenue Fund Transfer Debit or Increment.*

- e. *Expense Fund Transfer Debit or Increment.*
- f. *Expense Fund Transfer Debit or Increase for Purchase.*
- Budget Allocation by Source of Funding.
 - Origin expenditure budget items affected.
 - Establish budgetary ceiling for cost centers or projects funded.
 - Rescheduling Annual Period.
 - Income Requirements for Purchase.
 - Approval of Transfer.
 - Generation of budgetary expenditure on the basis of the requirements entered in the Transfer.
 - Requirements increase the PAC.
- g. *Changing Requirements Semester at CAP.*
- h. *Overriding Requirements of the PAC.*
- i. *Certification for Purchases Budget Consolidation.*
- Header record of certification.
 - Record of Purchase Requests consolidations to be certified.
 - Creation of detailed spending items that will be affected in the certification to the bindings before you enter.
 - Approval of Certification.
- j. *Free Shopping Budget Certification for Consolidation.*
- k. *Budget Certification Services Expenses except purchasing.*
- l. *Certification Budget for Other Expenses (Personal, Awards, Per Diem and Subsistence, etc.).*
- m. *Budgetary Commitment Purchasing.*
- n. *Commitment Budgetary expenses except Shopping Services.*
- o. *Budgetary Commitment Other expenses (personnel, fellowships, travel and subsistence, etc.).*
- p. *Reports*
- Annual Procurement Plan for Cost Center or institutional level.
 - Increase, Cancellation and Change Month to Date Format Requirements for INCOP, No INCOP.
 - Budget Amendments, Certifications and budget commitments.
 - Monthly budget execution through Cédulas Income and Expenditure Budget.
 - Running monthly income and expenses through statistical reports.
 - Scheduled Expenditure Cédulas Annual Procurement Plan.
 - Details of Certification and budget commitments
 - Annual Budget Settlement.
- q. *Integration with internal systems*
- The module Manufacturing Process Management and Budget Approval Proforma, Procurement, Accounts Payable and Treasury and Bank of ERP Enterprise Resource System-UTN.

V. SUMMARY OF THE USERS

Users are all those people directly involved in the use of the system. Below is a list of users:

System Administrator.- Person of the data center that manages the system.

Functional system administrator.- Person of the Chief of Budget Northern Technical University administers the system.

System user.- Person responsible for the cost center or project financed from the different units of the UTN that will use the system.

User management system.- Chief of Staff of the Budget, which validates the information from cost centers on the available budget request consolidates the information and records each of the administrative budget movements budget cost centers.

VI. SYSTEM DEVELOPMENT ENVIRONMENT

The system is composed of modules of Management Development and Approval Process of the Proforma Budget, Procurement, Accounts Payable, Treasury and banks, is also tied with ESIGEF Financial Management System managed by the Technical University of North. Each user has access to their utilities involved through a Web browser, quickly and easily and without intermediaries.

For the development of this project was used Oracle ® Database, Oracle ® Developer Suite, Oracle Business Intelligence Tools and Oracle ® Application Server 10g same as have been acquired by the UTN as an aid in the creation of new systems in the automation process administrative processes.

PLSQL Programming Language.

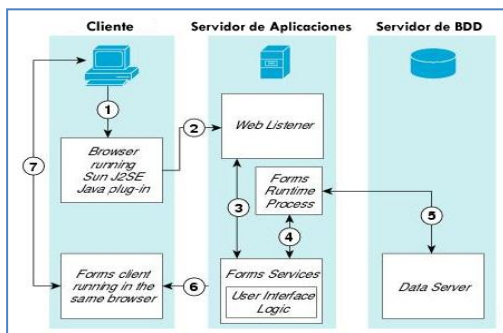


Figure 3: Forms-Based Architecture Services

The Chief of Budget and Cost Center at the University must have TCP / IP access to the database server and application server of the UTN. This with the aim that each user can access the application, and allow multiple options to manage according to the privileges set for the role it plays within the system.

RESTRICTIONS

Due to limitations with the licensing of Oracle ® Developer Suite Release 10g, you should see a small number of end users, up to approximately 400 concurrent users.

This is a system designed specifically according to the needs of the Chief of Budget and the University.

The operation is only for Intranet.

Not having a test server to validate the system in the test phases.

QUALITY RANGES

The development of Process Management System Implementation, Monitoring and Budget Settlement UTN fits the Software Development Methodology RUP, looking at the quality parameters that define the methodology.

VII. CONCLUSIONS

- By implementing Process Management System Implementation, Monitoring and Budget Settlement UTN, once fully entered the information, will show the execution-level budgetary cost centers, such information shall be easily accessible and available in real time through of reports.
- The quality of the measurement of cost budget cost centers depends on the budget planning and management.
- The evaluation of the budget is closely linked to budget planning so that depends on how the game developed to measure the degree of implementation of programs, projects, activities (costs) which seeks to college, identified in the program structure and in turn with the objectives and goals, providing the respective financial analysis with the use of the system.
- The system will provide greater participation of the representatives of the cost centers in planning and implementing the budget, using the annual procurement plan.
- By using the planning system has a monthly budget expenditures through the Annual Procurement Plan, whose certification of

availability begins the quarterly procurement process, performing a reengineering of processes between the Budget and Procurement Headquarters, generating a quarterly budget execution.

- The uses of Oracle ® database is advantageous for mass storage of information, and provide easy handling of data handled as files such as images, Microsoft Word, Excel and PDF.
- The development of a project through Oracle ® enables rapid development and code reuse through the use of templates, using a third-generation language such as PLSQL ⁶ provides a quick and easy interface between the front and database.
- The management of RUP software development implemented in the university has been very helpful, provides a clear picture in all phases of a project, its structure forces the developer to document the entire process from the beginning, development, production testing and tuning, with a detailed record of all changes made in the course to completion.

VIII. REFERENCES

- "[1]" **Applied to the Administration:** "
- [2] Oracle, "Overview of Forms Server", 2009, http://www.uriit.ru/japan/Our_Resources/Doc_iAS/forms.6i/a83591/chap02.
- [3] "RUP design stage", 2007, <http://www.scribd.com/doc/395783/RUP-etapa-diseno>
- <http://es.wikipedia.org/wiki>
- <http://alarcos.inf-cr.uclm.es/doc/ISOFTWAREI/Tema04.pdf>
- <http://es.mimi.hu/economia/>
- <http://finanzas.gob.ec/>

IX. ACKNOWLEDGMENTS

The Department of Computer Science, Finance Department, especially Mr. Fernando Garrido, Mr. Lucia Villalobos, Mr. Monica Flores deeply thank you for giving me all the support, collaboration and above all love and friendship.

At the Técnica del Norte University and especially the Faculty of Engineering and Applied Science Engineering Degree in Computer Science for allowing me to be part of a generation of successful and productive people in the country.



Andrea Guevara was born in San Gabriel, Carchi, Ecuador on June 19, 1982. She completed her studies in the Career of Computer Systems Engineering at the Técnica del Norte University.

Contact: andreveroblue@hotmail.com