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SUMMARY

In an era of limited resources in which the wise management of resources and a good projection of revenue and expenditure is essential for the development and maintenance of the trade, administration and budget management is essential for achievement of objectives and optimum use resources within any institution, the main challenge is to have optimization strategies in the process of formulation and budgeting according to institutional objectives posed, taking into account the real needs of all entities that make up the institution, strengthening efficiency and effectiveness of strategic planning.

The Process Management Module Development and Approval of Budget Proforma Technical University North is a solution to all administrative processes for the financial budget of the institution and agencies, as well as for the complex relationship that has always existed between the planned and budgeted. The objective of this module is to generate a realistic budget based on needs of all entities that make up the institution, managing the financial budget that meets the objectives of institutional planning.

To meet the objective of this system, as for any other information system depends on the quality of this data has been entered and is helpful to have a strategic plan for each unit, ensuring the advancement of the institution, and the proper operation of the Process Management Module Development and Approval of Budget Proforma has been implemented and implemented to contribute to the development and productivity of the Technical University of the North.

INTRODUCTION

Management Process of Formulation, Elaboration and Approbation of Proforma Budget.

1. Scope
Develop and i

Develop and implementa an institutional computer ther solves the problems of managment, administration and formulation of budgeting of University, attached to the rules and bugest guidelines.
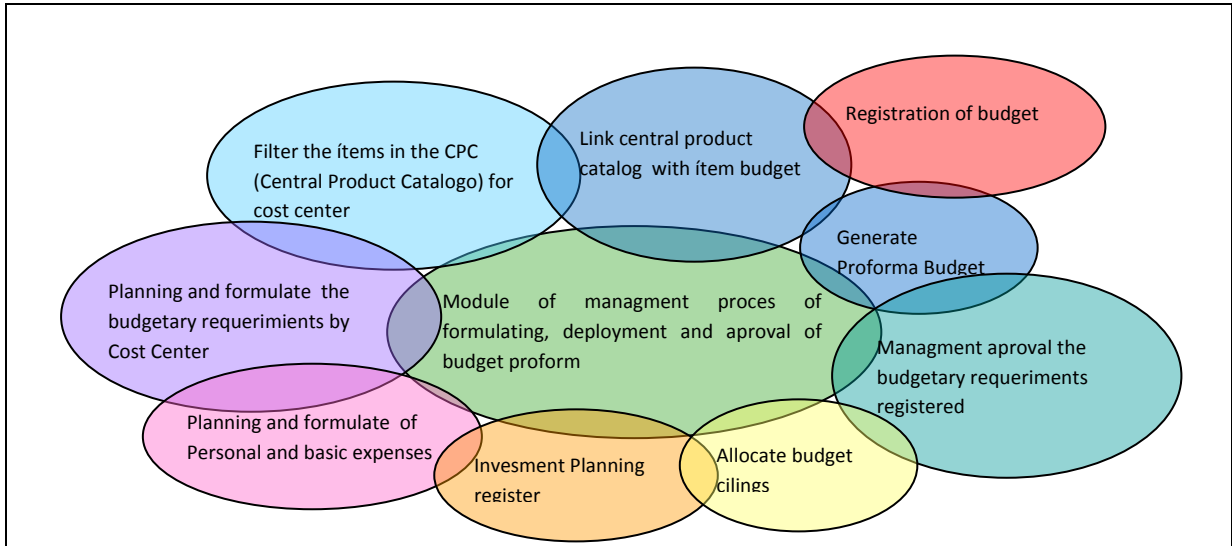
Source: Own

Figura1.1. Proyect Outline

2. Development Tools

In this development proyect we used the following tools:

- Oracle ® Database   Database
- Oracle ® Developer Suite   Aplication, Reports and Design BDD (Forms, Reports, Designer)
- Oracle ® Application Server 10g   Aplication Server

hose which have been acquired by the UTN, potentiates investment directions to the Academy to technological advance, helping to automate their processes in the management of its resources.

CLIENT LAYER

Forms Applet

Client
Web Browser

MIDDLE LAYER

Forms Listener

Forms Runtime Engine

Servidor de Aplicaciones

DATABASE LAYER

Servidor de Base de Datos
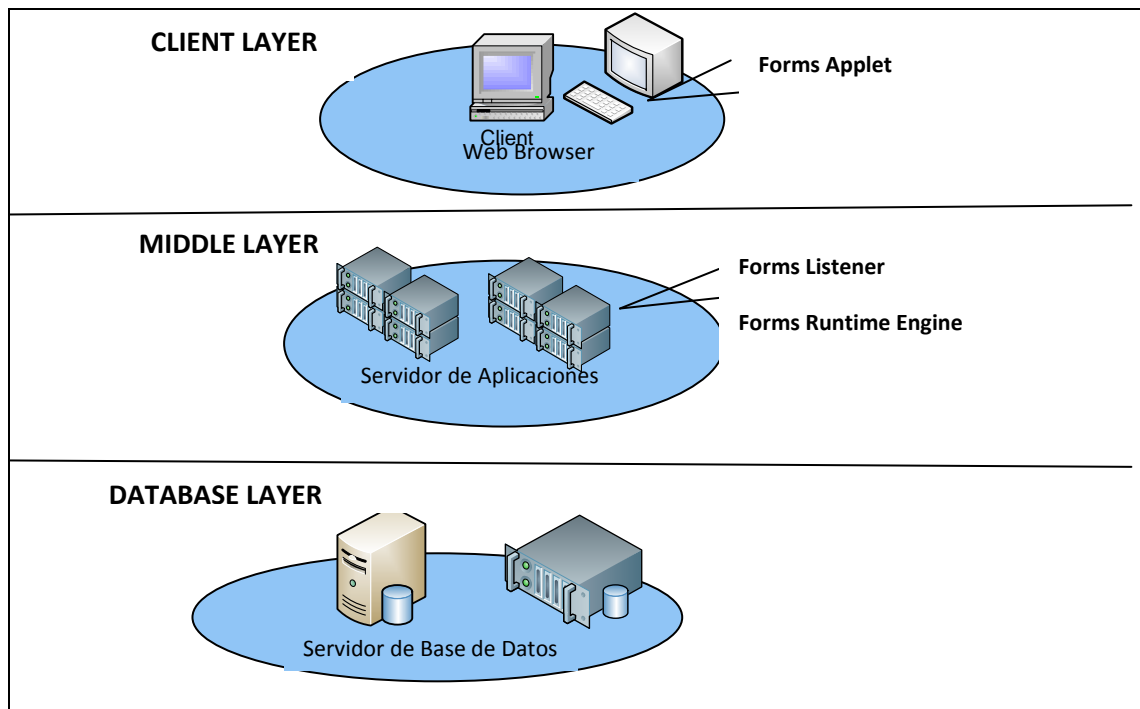
Source: [2]

Figure1.2. Forms-Services Architecture

3. Benefits

- The system can manage the financial resources of the UTN giving a good start, with the budget process, which helps to invest the resources based on institutional objectives raised

- The system keeps track of the budget of the institution, Cost Center, recording information from cost centers, those responsible and the budget allocated to them. It also carries a budget numbers, allowing those responsible for each cost center to manage their budget, both income and exit.

- Maintain a relationship between planning and budget.

- Manual processes are eliminated in the process of Design, Development and Approval of Budget Proforma expedite and reducing errors in activities that involve obtaining a Proforma annual Budget.

- The various University units may access the state of its budget in a fast and real.

- The graphical user interface shortens the learning curve for its ease of use.

---

[2] Oracle, "Overview of Forms Server", 2009

http://www.uriit.ru/japan/Our_Resources/Doc_iAS/forms.6i/a83591/chap02.htm

- Agilita la toma de decisiones, puesto que con una acción simple puede acceder a información real y al instante.

- Maintains the institution along the lines of the Financial Management System (ESIGEF).

- Have a system made with current technology which provides greater data security.

- Processes fast, efficient and consistent.

- Information systems of the University are unified in this way there is no duplication of data.

- With the information the budget directorate has the facility to study and analyze the information to better exploit the resources that are allocated to the agency.

CHAPTER I:

1. VISION

1.1. Purpose

The purpose of this document is to define high-level application requirements BUDGET MANAGEMENT SYSTEM - SIGESPRE with MANAGEMENT MODULE IN THE PREPARATION AND ADOPTION OF THE BUDGET PROFORMA.

MANAGEMENT MODULE OF THE PREPARATION AND ADOPTION OF THE BUDGET PROFORMA as part of the ERP system. - UTN, relies heavily on automating the process of design, development and adoption suffering the Budget Proforma while obtaining the final annual budget, this process begins with the planning and recording of budget revenues, and then turn to the formulation of expenditure budget, this is based on the requirements planned to be admitted by the representatives of the different cost centers, these requirements go through an approval process to be consolidated budget which together recorded budget for staff costs, expenses basic investment budget, will kick off the development of the Proforma Budget.

It will provide management information and statistics in the process.

It will also integrate with ERP modules of the UTN in order to have a centralized system for the whole university.

The details of how the system meets the requirements can be seen in the specification of use cases and additional documents.

1.2. Scope

This vision document applies to the MODULE PROCESS MANAGEMENT AND BUDGET APPROVAL PROFORMA. This module will be developed by Mayra Isabel Chamorro Sangoquiza Graduate School of Engineering Applied Sciences, NTU, as a thesis projec.

1.3. Positioning.

- **Business opportunity**

  This system will enable the style of the UTN automate control of the budget phases in the elaboration of the budgetary Proforma, allowing the Northern Technical College expedite the preparation of this document, reducing the time PROCESSING Your paragraph, also will allow a Each Center Cost to develop and enter no planned budget

set and a monthly needs of the NHS, consultations with a Rapid Access Your State budget, thanks to the friendly interfaces and graphics. In addition, respondents will be always updated data, here Which factor is not very important to control paragraph Branch of the UN general budget.

The system also allows each cost center enter the system utilities via the Web, quickly and easily and without intermediaries.

- **Defining the problem**

The problema	The budget department at the Technical University of the North is having a system that does not meet all the needs in the process of preparing and monitoring the budget proformaNo tener un control del presupuesto por centros de costo. No track the validity period of the budget items. There are processes that are performed manually, and influencing the development of the proforma budget, affecting the results.
Affects	All users of the various Departments and Faculties of the Technical University of Northern processes involved with managing and developing the Budget Proforma (Application Requirements).
The impact associated is	Store and organize information on the operational budget of each department and faculty, so that these data are accessible in a timely and effective from their places of work. This is achieved by automating the process and using Web infrastructure.
A good solution	Automate the process of entry requirements, approval, and development of the budgetary proforma using a WAN with a database accessible from the different nodes of the network and generate simple and friendly interface to solve the internal requirements of those involved in the process of elaboration and approval of the budgetary

	proform. Meet the needs of integration with existing systems.

- **Sentencia que define la posición del Producto**

To	Financial Management - Budget Office Facultades Escuelas Departamentos Decanos Directores de Escuela Coordinadores de Carrera
who	Se les permita administrar su presupuesto. Necesitan mantener una administración presupuestaria por Centros de Costo. No poseen información en tiempo real del estado del presupuesto.
The product name	Budget Management System – SIGESPRE. MANAGEMENT PROCESS OF FORMULATION, ELABORATION AND APPROBATION OF PROFORMA BUDGET.
what	Stores the information needed to automate the process of formulation and development of the proforma budget up to get the annual approved budget of the Technical University

	of the North.
Not as	The current system that carries information in a very general budget
	No negative balances controls in budget.
Our product	To automate and control the various processes that involve the development and adoption of the Budget Proforma through a simple and friendly graphical interface. It also provides quick access and update the state budget from any network point with access to the database.

1.4. Description of Stakeholders (Participants in the Proyect) and users

Stakeholders are all those directly involved in the definition and scope of this project. To provide a product that is tailored to the needs of users, it is necessary to define and engage all participants in the project as part of the requirements modeling Process.

It is also necessary to identify the users of the system and ensure that all participants in the project adequately represented. This section provides a profile of participants and users involved in the project.

Name	Description	Responsibilities
Ing. Fernando Garrido	Director of Department of Informatics, UTN	Director of the Informatics Committee, which carries out control and monitoring.
Ing. Juan Carlos García	Director of Proyect	Responsible for the analysis and design. Manage the smooth running of the project regarding the construction and implementation
Egresada Mayra Chamorro	System Analyst	Computer Committee member.
Ing. Lucia Villalobos	Responsible for the project by the Budget Office	Responsible for coordinating with the different users correctly assess the requirements

		and the correct design of the system. User.

Table 1.3. Description of Stakeholders and users

- **User Summary**

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

Name	Description	Responsibilities
Managment of system	Person of the Computer Center that manages MANAGEMENT MODULE AND PROCESS PPROVAL OF THE PROFORMA BUDGET	Functional administrative system (user access management, system maintenance to meet new requirements).
Manager functional system	Person of the Budget Department of the Technical University of Northern Management System	Functionally Manage System: Creating New Accounts, periods of definition.
System User	Staff from different departments and faculties of the Technical University North will use the system	Enter the information pertaining to each department and faculty of the Technical University North which will develop the Proforma Budget. Check the status of the budget information for your department
User Management System	Budget Department staff.	Validate information from different departments. Consolidating information. Generate Proforma Budget. Make Budgetary Funds Transfers.

Table 1.4. User Summary

- **User Enviroment**

Users of MODULE MANAGEMENT PROCESS AND ADOPTION OF THE BUDGET PROFORMA be Deans, School Directors, Coordinators Carrera, heads of departments, the number of users depend on the Cost Center to be defined by the system administrator.

Currently the Elaboration of the pro forma budget is the responsibility of one department and is done manually so its development is very susceptible to errors, this process takes about three months to be sent to their approval to the Ministry of Economy and Finance. After the adoption of the respective reforms are made so that the budget takes effect.

The user logs on a computer identified and allowed to enter the application and menu designed for each user according to their role. This system is a web application environment so that users are familiar with its use.

The Project is developing tools Oracle Developer Suite 10g (Oracle Forms and Oracle Reports), with a remote Oracle Database Standard One and Reports will be generated in PDF format.

The process of formulation of the Budget and Development Proforma Annual Budget is composed of the following activities:

a) Send the statement to the representatives of the cost centers and start planning projects income and expenditure budget.

b) Cost Center produced its annual planning income and expenses.

c) Planning is reviewed in order of priority given to financial management, where budget ceilings allocated to cost centers.

d) Distribute the revenue budget for each cost center, budget ceilings allocated in rank order, where the dean of the faculty, budget ceilings allocated to their schools and school principal distributed to their careers.

e) Record revenue projection of self for each cost center planning

f) Register to receive income projection for fiscal contribution.

g) Enter the budgetary ceilings planning to cover personal expenses, basic and centralized.

h) Distribute the revenue budget for each cost center:

- It distributes the revenue budget allocated by the government at the University to each cost center.

- It distributes the budget of income obtained by self at all cost centers involved.

i) Assign filters to entry requirements, such as:

- Appropriation central to the item's catalog of products.

- Item to cost centers

- Programs for cost centers.

- Budgetary structure.

j) Manage the budget periods.

- Enable the system for data entry

k) Income budget requirements:

- The cost center budget your monthly expenses in order..

- Registration requirements for different cost centers to amounts per item required

- Requirements Management Approval

- The requirements entered, will be approved in the hierarchy of cost centers.

l) Consolidation of information

- Preparation of Budget ProformaGestión de flujo de aprobación de la Proforma Presupuestaria.

m) Register of the budget approved by the Ministry of Economy and Finance..

n) Integration with the modules of the ERP enterprise resource management.

1.5. Stakeholders Profiles

- **Proyect Coordinator**

Representative	Ing. Fernando Garrido
Description	Head of Department of Informatics, Technical University of North Head at the Project Steering.
Type	Director
Responsabilities	Establish general guidelines for project development. Coordinate management at the different requirements that arise in the system development
Succes Criteria	Maintain a comprehensive functionality in the systems. Keep the application active after being implanted
Implication	Revisor de la administración (Management

	Reviewer)
Deliverable	N/A
Comments	Ongoing relationship with the development of the project. Management level support when necessary

Tabla 1.5. Proyect Coordinator Profile

- **Proyect Responsible**

Representative	Juan Carlos García
Description	Responsible for the project by the Department.
Type	System Analist
Responsabilities	Manage the smooth progress of the project regarding the construction and implementation.
Succes Criteria	Comply with the schedule determined. Get a quality system that meets the functional requirements set.
Implication	Project Manager (Project Manager)
Deliverable	Vision document Glossary Risk List Summary use case model Specifications of the use case model Additional Specifications
Comments	None

Table 1.6. Project Manager Profile

- **Responsable funcional**

Representative	Lucia Villalobos
Description	Responsible for the project by the Budget Department of the Technical University of North
Type	User
Responsabilities	Responsible for coordinating with the various users the correct determination of the proper requirements and system design. Coordinate validation testing the new system. Coordinate and ensure the training of users.
Succes Criteria	System in operation.
Implication	Active
Deliverable	None

Table 1.7. Functional Profile Project Manager

- **Perfiles de usuario**

Representative	Mónica Flores
Description	Assistant director of budget
Type	User
Responsabilities	Responsible to have updated information filters and system parameters.
Succes Criteria	System in operation. Responsible for maintaining training of filters and basic initial parameters for a proforma with quality data. Obtaining reports and statements of the pro forma budget.
Implication	Active
Deliverable	None

Source: Own

Table 1.8. User Profile: Mónica Flores

Representative	Lucia Villalobos
Description	Boss Budget
Type	User
Responsabilities	- Responsable de administrar adecuadamente y Ingresar a información párr obtener Una proforma PRESUPUESTARIA Con información real. - Administrar Funciones del Sistema.
Succes Criteria	Module installed and running System with complete functions, Generating BUDGET proforma basis in a planned requirements and entered into the system. Reports and state income requirements of the proforma BUDGET
Implication	Total responsibility of the module.
Deliverable	None

Source: Own

Tabla 1.9. User Profile: Lucia Villalobos

Needs	Priority	Concerns	Actual Solution	Proposed solution
A system that facilitates the consolidation of information to facilitate the development of a proforma budget based on actual requirements of each cost center.	High	The system needs to consolidate the information to facilitate the preparation of the proforma	Not exist	Develop budget management system - UTN and Management module of the process of Design, Development and Approval of Budget Proforma.
Implementing this system to make it	High	Develop the Pro Forma Budget	Proforma currently	Develop the Pro Forma Budget for

live for the preparation of the Proforma the following year.		for next year	performs in a budgetary system that meets all requirements.	the next year using the system already in place and operational.
Develop the system using tools that facilitate and accelerate its development.	High	You should use existing tools.	N/A	Develop the system using the tool that has the UTN and Oracle Developer Suite 10g Ralease.
The system interface should be easy to use, meeting all established requirements.	High	Meet all user requirements.	Development with the help of experts in the department budget.	Development with the help of experts in the field.
Get reports tailored to user needs and Statistics	Average	Having a control in percentages for each Cost Center	Not exist	Bussiness Intelligence manufactured using Oracle Discoverer.

Source: Own

Table 1.11. Needs of stakeholders and users

- **Alternatives and skills**

Acquire a system developed externally.

The headquarters budget is using a system that meets the requirements to generate a pro forma budget prepared based on the real needs of departments and faculties that make up the institution.

1.6. Product Overview

Budget Management System - UTN, the management module of the process of Design, Development and Approval of Budget Proforma has been designed to automate the process that meets the budget to reach pro forma approval by the ministry of finance, eliminating manual processes and ensuring that its formulation based on the real needs of the entities that comprise the institution.

- **Product Overview**
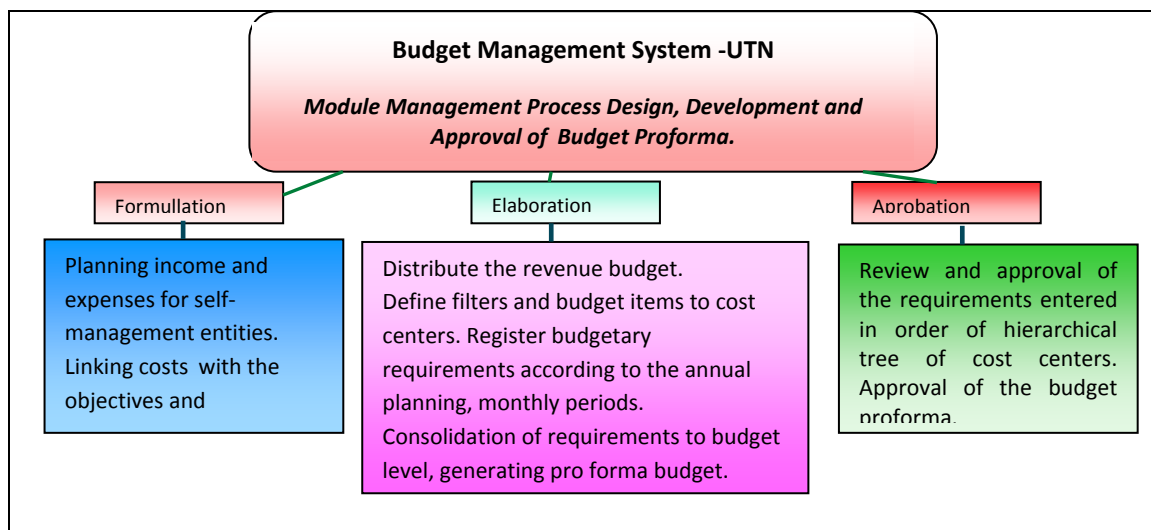
Source: Own

Figure1.1. Poduct Perspective

- **Caracteristics summary:**

    The following will list the benefits that the customer will get from the product

User Benefits	Features that support it
The time of preparing the pro forma budget is reduced.	The planned data entry requirements from the different cost centers will be systematic and orderly manner. In the budget department will have a requirements analysis tool and consolidated budget for the different cost centers.
Users of the different cost centers will have a unified tool.	Avoid the use of manual forms and documents are not unified
It will have high availability.	Access to the system via the Web will allow users of different cost centers with immediate access from anywhere on the intranet of the UTN.
Facilities for data analysis	hrough the various reporting and query functions that provide the system, you can obtain the proforma budget level cost center or general
Allowed to take control of the budget, monthly	Revenue requirements for cost centers are scheduled to perform monthly, which will run the planned budget
Get information for requesting an injunction	The requirements entered, will be linked to the university functions contributing.

Source: Own

Table 1.12. Features summary

- **Assumptions and Dependencies**

The Head of Budget Office where it is to access the system SIGESPRE - UTN, access TCP / IP server and database applications UTN. For users to access the product, and allows you to view and generate reports according to the roles within the system security.Costos y precios

Detail		USD	Real (USD)
Hardware	Computer Equipment Web Application Server Database Server Computer with Web Browser	1500 5000 5000 700	1500 0.00 0.00 0.00
Software	Oracle Standard One 10g (1 Processor license) Oracle Developer Suite Release 10g Oracle Application Server 10g, Oracle Forms, Report Server (1 Processor license)	5000 5000 20000	0.00 0.00 0.00
Development Cost	Courses and Books, Advice	900	900
Training to develop yourselve	Stationery and Office Supplies	700	700
Proyect	(Parcial)	45000	45000
Subtotal		89040	48100
1% Contingency		8990	481
Total		**98030**	**45481**

Source: Own

Table 1.13. Costs and Prices

▪ **Licensing and Installation**

It is necessary to purchase the product developer license Oracle ® Developer Swite10g.

Installing the product is made by the support staff of the Department of Information as it is a system using Web technology.

1.7. Product description

- **Ease of access and use**

The SIGESPRE will be developed using Web technology and facilities to provide the tools Oracle Developer Suite Release 10g, allowing users to easily access and use

- **Unification of information**

    One of the main objectives of SIGESPRE is to identify and present the user with unified formats of data entry and query.

- **Better control and validation of information**

    Users of the Chief of Budget will have facilities for the verification of the information consolidated.

- **Cost Centres and Departments**

    Be responsible for planning their annual requirements, monthly periods and enter the budget system. Have the possibility to check and verify the status of your budget.

- **Department of Budget**

    It makes the verification of the requirements with the budget, thus kicking off the budget adjustments and the preparation of the budget proforma. It's in the possibility of control of budget execution at any time.

1.8. Contraints

Due to limitations with the licensing of Oracle ® Developer Suite Release 10g, you should consider a number of end users, up to 12 concurrent users or so.
This is a system designed specifically according to the needs of the Chief of Budget and its operation is only for Intranet.

- **Quality Rankings**

    Module Development Management Process Development and Approval of Budget Proforma adjusted to the Software Development Methodology RUP, adjusting to the tangos of quality that the methodology provides

- **Other requirements product**

    For the construction of the application requires a computer where services run continuously Ralease Oracle 10g Developer Suite (Oracle Forms and Oracle Reports) since it was developed on the Oracle platform

For publication SIGESPRE application is required to access TCP / IP to the server database (Oracle Standard One) and Application Server (Aplications Server) of the UTN.

The product installation will be done by support staff of the Department of Information as it is a system using Web technology.

CHAPTER II:

2. SOFTWARE DEVELOPMENT PLAN

It is a draft prepared for inclusion in the proposal prepared in response to the draft Resource Management System (ERP) for the budgetary management system at the Technical University of Northern Management Module Process Design, Development and Approval of Budget Proforma. This document provides an overview of the proposed development approach. Methodology for the project using Rational Unified Process (RUP). It will give the details for the phases of Start and Development and will outline further downstream Construction and Transition to give an overview of the whole Process.

The proposed development approach is a RUP process configuration according to the characteristics of the project, selecting the roles of participants, activities performed and artifacts (deliverables) to be generated. This document is itself one of the RUP artifacts.

2.1. Purpose

The purpose of the Software Development Plan is to provide the information necessary to control the project. It describes the software development approach.

Users of the Software Development Plan are:

- The project leader, who uses this plan to organize the agenda and resource requirements, and for tracking.

- Members of the development team, use it to understand what to do, when to do it and what other activities depend on it.

2.2. Scope

The Software Development Plan describes the overall plan used for the development of the "Module Management Process Design, Development and Approval of Budget Proforma - UTN. The detail of the individual iterations described in the plans of each iteration, documents are provided separately. During the development process in fixture Vision defining characteristics of the product to be developed, which forms the basis for planning iterations. For version 0.1 of the Software Development Plan, we have focused on the capture of requirements through interviews with the stakeholder, to make a rough estimate, once started the project and during the Inception phase will generate the first version of artifact "Vision", which will be used to refine this document. Subsequently, the project's progress and monitoring in each of the iterations result in the setting of this document to produce updated versions.

2.3. Summary

After this brief description, the rest of the paper is organized into the following sections: - *Project Overview*.- Provides a description of the purpose, scope and objectives of the project, setting the artifacts that will be produced and used in the same. *-Project Organization*.- Describe the organizational structure of the development team. - *Process Management.-* Explains planning and cost estimates, defines the phases and milestones of the project and describes how to conduct its monitoring. *Implementation plans and guides .-* Provides an overview of the software development process, including methods, tools and techniques that will be use.

2.4. Proyect Overview

2.4.1. Purpose, Scope and Objetives

North Technical University is a public institution and its mission is essentially to contribute to economic development, scientific, educational and cultural center of the northern region and the country through the creation and transmission of scientific knowledge critical training professionals, creative , qualified, and ethical humanists, committed to preserving the environment. Over the next five years, will be an accredited institution of higher education, strengthening the comprehensive training, scientific research and technology aimed at sustainable development through a university quality management, diversifying the links with the environment and contributing to human development society. This, with an anticipated adjustment to new information systems and technological developments. Therefore, the UTN considered necessary to develop a new system Enterprise

25

Resource Management (ERP) as part of process automation of all institutional areas, stop the system which is included as part of Budget Management System and Module Formulation Process Management, Process Development and Approval of Budget Proforma.

rom the procedures already established in the Headquarters of the Technical University Budgets North, as part of the automation plan established by the Department of Informatics, determines the creation of the System Management Process Design, Development and Approval of the UTN Proforma Budget to improve the management of activities related to the University Community.

In this module the main activities defined are automated based on information from the various meetings that have taken place with stakeholders, these activities are as follows:

- **Proforma Budget Formulation**

  - Linking the items of the Central Product Catalog (CPC Acquisition Management Module) with the item budget (budget)

  - Filters budget items and by cost center.

  - Definition of the program structure (linkage of program, project, activity by cost center).

  - Planning monthly income in periods centers that generate self-management cost.

  - Planning of the institution's total income, whether centralized or self-management of fiscal support.

  - Cost Planning, justifying what university function contributes in monthly periods by cost centers.

  - Planning of institutional costs, justifying what university function contributes in monthly periods

- **Preparation of Budget Proforma.**

  - Planning Register of revenues and expenditures monthly periods for each cost center.

  - Planning Register institutional revenues and expenditures monthly periods.

  - Consolidate budget items entered by the cost centers budget level.

- Register of centralized expenditure and investment budget level.

- **Approval of the Proforma Presupuestaria**

  For the pro forma budget based on the requirements of all entities that make up the institution:

  - The requirements were approved in order of hierarchical tree of cost centers.

  - The last entity to approve the requests admitted is the headquarters of the budget.

  - After generated the proforma budget approval takes the Honorable Academic Council.

  - Record of the proforma approved the Honorable Academic Council, if you have had changes.

- **Register of Approved Budget**

  - Record the approved budgetary Proforma Honorable Academic Council Financial Management System - ESIGEF.

  - Record the budget approved by the Ministry of Finance Management Module Process Design, Development and Approval of Budget Proforma.

- **Balances Budget**

  - Balance Sheet Profit and Loss Balance. Balance between Accounting and Budget Comparison.

- **Statistics**

  - Porcentajes de Presupuestos de Ingresos por Centro de Costos.

  - Porcentaje de Presupuestos de Egresos por Centro de Costos.

  - Porcentaje de Ítems de Pedidos por Centro de Costos

- **Integración con los sistemas de Adquisiciones, Nómina y Contabilidad.**

2.4.2. *Assumptions and Restrictions*

Assumptions and restrictions on the Budget Management System, which are derived directly from interviews with stakeholders of the NTU are:

- The project is fully funded by the Technical University of the North and there will be inconveniences related to the total project cost or the speed with which they must meet the same partial disbursements.

- Should be considered the implications of the following critical:

- Workflow Management, security of transactions and information exchange Adapting to the process of design, development, pro forma approval of the budget of the UTN.

- The system is designed for Web Platform and comply with current quality standards for software development.

- This will be achieved following the RUP methodology development for the software engineering process and tools for building Oracle 10g Application.

Naturally, the list of assumptions and constraints will increase during the development of the project, particularly once the engine set "Vision.".

2.4.3. *Project Deliverables*

The following identifies and describes each of the artifacts that will be generated and used by the project and the deliverables are. This list is the configuration of RUP from the perspective of artifacts, and we propose for this Project.

It should be noted that according to the philosophy of RUP (and all iterative and incremental process), all artifacts are subject to change throughout the development process, thus, only at the end of the process could have a final version and complete each of them. However, the result of each iteration and project milestones are focused on achieving a degree of completeness and stability of the artifacts. This will be indicated later when presenting the objectives of each iteration.

- **Software Development Plan**

    It is the present document.

- **Model Business Use Cases (context diagram).**

t is a model of business functions viewed from the perspective of external actors (agents of record, late applicants, other systems etc.).

Lets put the system into the organizational context with emphasis on the objectives in this area. This model is represented by a Use Case diagram using stereotypes specific to this model.

- Business Object Model

It is a model that describes the performance of each business use case, establishing internal actors, the overall information handling and workflows (workflows) associated with business use case. For the representation of this model are used collaboration diagrams (to show external parties, internal and entities (information) that handle, a Class Diagram to graphically display system entities and their relationships, and Activity diagrams show the flow work.

- Glossary

It is a document that defines the main terms used in the project. Sets a consensus terminology.

- Use Case Model

The Use Case model shows the system functions and actors who use them. Is represented by Use Case Diagrams

- Vision

This document defines the vision of the product from the customer's perspective, identifying the needs and characteristics of the product. Provides a basis for agreement on system requirements.

- Use Case Specification

For use cases that require it (whose functionality is not obvious or not, just a simple narrative description) is a detailed description using a template document, which includes: preconditions, post-conditions, flow of events, requirements non-functional partners. Also, for use cases where complex flow of events is a graphical representation may be attached by an activity diagram.

- Additional Specifications

This document will capture all the requirements have not been included as part of use cases and refer non-functional requirements overall. These requirements include: legal requirements and standards, implementation of standards, product quality requirements, such as reliability, performance, etc., Or other environmental requirements, such as operating system compatibility requirements, etc.

- Prototypes of User Interfaces (Templates)

These prototypes that allow users to get an accurate idea about interfaces that provide the system and thus get feedback from you about the system requirements. These prototypes will be made as hand drawings on paper, drawing with a graphical tool or executable interactive prototypes, following that order, according to the progress of the project. Only the latter type will be delivered at the end of the Elaboration phase, the others will be discarded. Also, this device will be rejected in the construction phase to the extent that the result of the iterations are developing the final product.

- Analysis and Design Model (Entity-Relationship Model)

This model provides the realization of use cases into classes and passing from one representation in terms of analysis (not including implementation aspects) to a design (including an orientation to the deployment environment), according to the progress of the project.

- Model Data Model (Relational)

Anticipating that the persistence of the information system will be supported by a relational database, this model describes the logical representation of persistent data, according to the focus on relational database modeling. To express this model using a Class Diagram (which uses a UML Profile for Data Modeling, to achieve representation of tables, keys, etc.)..

- Implementation Model

This model is a collection of components and subsystems that contain them. These components include: executable files, source code files, and any other files needed for the implementation and deployment of the system. (This model is only a preliminary version at the end of the pipeline, then have enough refining).

- Deployment Model

This model shows the deployment configuration of the types of system, which will make the deployment of components.

- Test Cases

Each test is specified by a document setting out the conditions of operation, the test inputs and expected results. These test cases are applied as regression testing in each iteration. Each test case will test a procedure associated with the instructions for testing, depending on the type of test the procedure may be automated using a test script.

- List of Risks

This document includes a list of known current risks in the project, sorted in descending order of importance and special operations in contingency or mitigation.

- Installation Manual

This document contains instructions for installing the product. - Material End User Support

Corresponds to a set of documents and ease of use of the system, including: User Guides, Operation Guides, Maintenance Guides and Online Help System.

- Product

The files of the product packaged and stored in a CD with the appropriate mechanisms to facilitate installation. The product, from the first iteration of the construction phase is developed incrementally and iteratively, obtaining a new release at the end of each iteration. - Evolution of Software Development Plan

The Software Development Plan will be reviewed weekly and will be refined before the start of each iteration.

2.5.   Organizaction Proyect

2.5.1.   Proyect Participants

Currently there are designated staff includes Project Manager, Control and Monitoring Committee, other participants that may be appropriate to provide the requirements and validate the system. The remaining staff of the project considering the phases of Home, Development and two iterations of the construction phase, will consist of the following jobs and associated personnel:

Project Manager.- With experience in development methodologies, CASE tools and notations, including UML and the RUP development process.

Systems Analysts.- The profile is established: Computer Engineer with knowledge of UML, one of them at least with experience in online systems related to the Project.

Analysts - Programmers.-With expertise in project development environment, so that prototypes can be as close as possible to the final product. This work has been entrusted to Mayra Isabel Chamorro Sangoquiza.

Software Engineer.- The profile set is: Computer Engineering to participate by work requirements management, configuration management, documentation and design data. Responsible for functional testing of the system, perform the task of Tester..

2.6.   Roles and Responsibilities

Here are the main responsibilities of each of the posts in the development team during the phases of Start and Development, according to the roles they play in RUP.

Post	Responsibilities
Project Manager	The project manager allocates resources, manages priorities, coordinates interactions with customers and users, and keeps the project team focused on the objectives. The project manager also establishes a set of practices that ensure the integrity and quality of project artifacts. In addition, the project manager will oversee the establishment of the system architecture. Risk management. Planning and project control
Systems analyst	Capture, specification and validation of requirements, interacting with customers and users through interviews. Development Model for Analysis

	and Design. Collaboration in the development of functional tests and data model.
Programmer	Prototyping. Collaboration in the development of functional tests, data model and the user validations.
Software Engineer	Requirements management, change and configuration management, processing of the data model, preparation of tests, preparation of documentation. Develop models of implementation and deployment

Source: Own

<center>**Table 2.1.** Roles an Responsibilities</center>

2.7. Process Management

2.7.1. Project Estimate

The project's budget and resources involved are attached in a separate document.

2.7.2. Proyect Plan

This section presents the organization in phases and iterations and the project schedule.

- **Plan Phases**

    The development will take place based on phases with one or more iterations in each of them. The following table shows the distribution of times and the number of iterations of each phase (for the Construction and Transition phases is only a very preliminary approach).

Phase	Nro. Iterations	Duration
Start Phase	1	8 weeks
Elaboration Phase	2	7 weeks
Construction phase	2	15 weeks
Transition phase	-	-

Source: Own

<center>**Tabla 2.2.** Phases Plan</center>

The milestones that mark the end of each phase are described in the following table

Description	Milestone
Start Phase	This phase will develop product requirements from a user perspective, which will be established in the Vision artifact. The main use cases will be identified and will be a refinement of the Project Development Plan. The acceptance of the customer / user of the appliance Vision

	and Development Plan marks the end of this phase.
Elaboration Phase	At this stage we analyze the requirements and developed a prototype architecture (including the most relevant parts and / or criticism of the system). At the end of this phase, all the use cases for requirements to be implemented in the first release of the construction phase must be analyzed and designed (in the Model Analysis / Design).The review and acceptance of the prototype system architecture marks the end of this phase. In our particular case, not to include the following steps, review and delivery of all the artifacts at this point of development is also included as a milestone. The first iteration will aim at identifying and specifying the major use cases, and their implementation in the Model Preliminary Analysis / Design, also permit an overview of the state of the artifacts at this point and adjust if necessary the planning to ensure compliance with the objectives. Both iterations have a duration of one week.
Construction phase	During the construction phase are completed to analyze and design all the use cases, refining the Model Analysis / Design. The product is built based on two iterations, each producing a release to which tests are applied and validated with the customer / user.We begin the development of user support material. The milestone marks the end of this phase is the release version 3.0, with partial operational capability of the product which has been considered as critical, ready for delivery.
Transition phase	This phase ensures prepare an implementation and change the previous system properly, including training of users. The milestone marks the end of this phase includes the delivery of all project documentation with installation manuals and other material support to the user, end user training.

Source: Own

<div align="center">

Table 2.3. Phases Plan : Milestone

</div>

CHAPTER IV:

3. LOGICAL VIEW

3.1. ENTITY RELATIONSHIP MODE

Source: **Own**

Figure 4.1. ENTITY RELATIONSHIP MODE

3.2.   Phisical Model
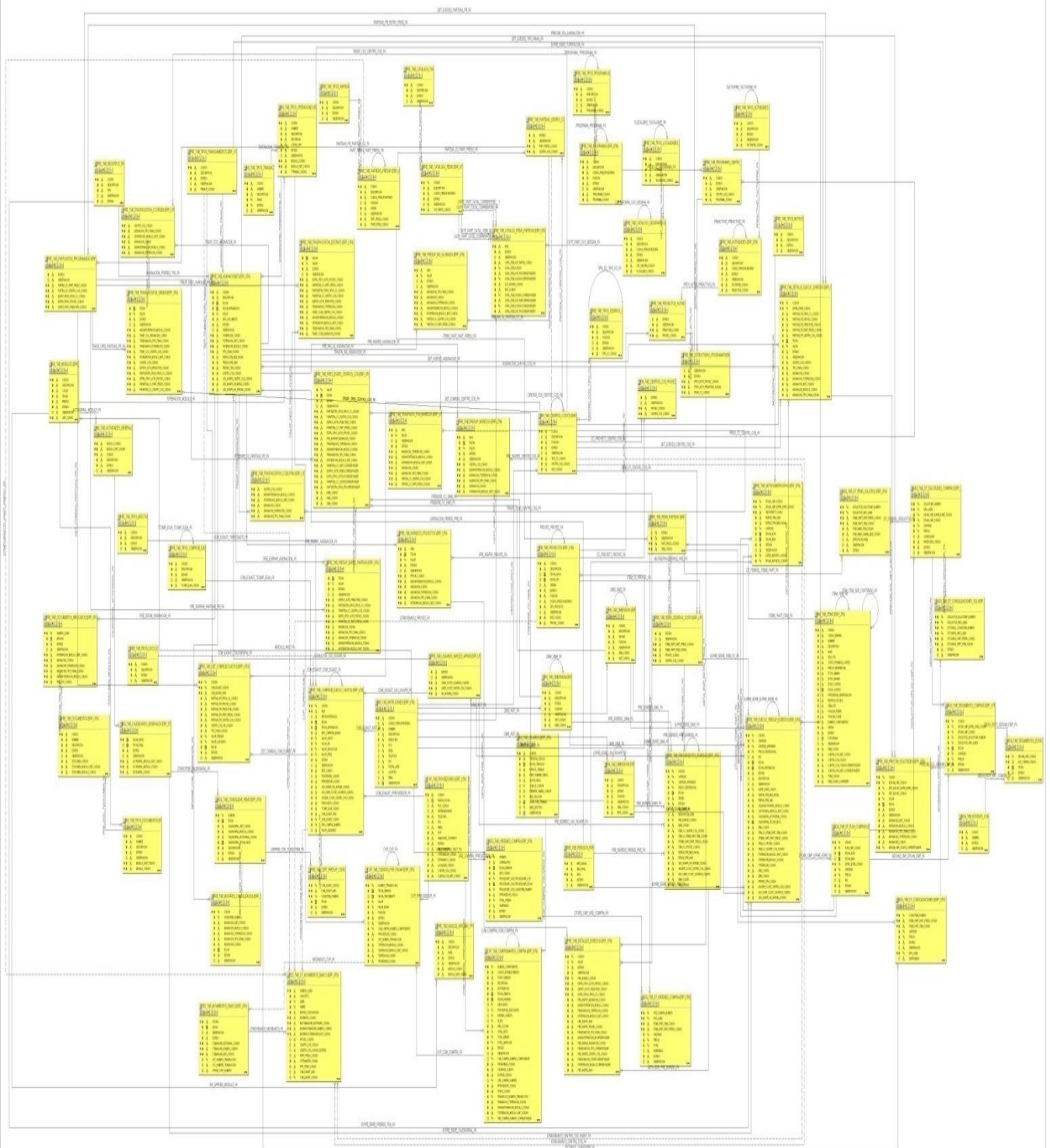
Source: Own

Figure 4.2. Phisical Model

3.3. OVERALL PACKAGE DIAGRAM
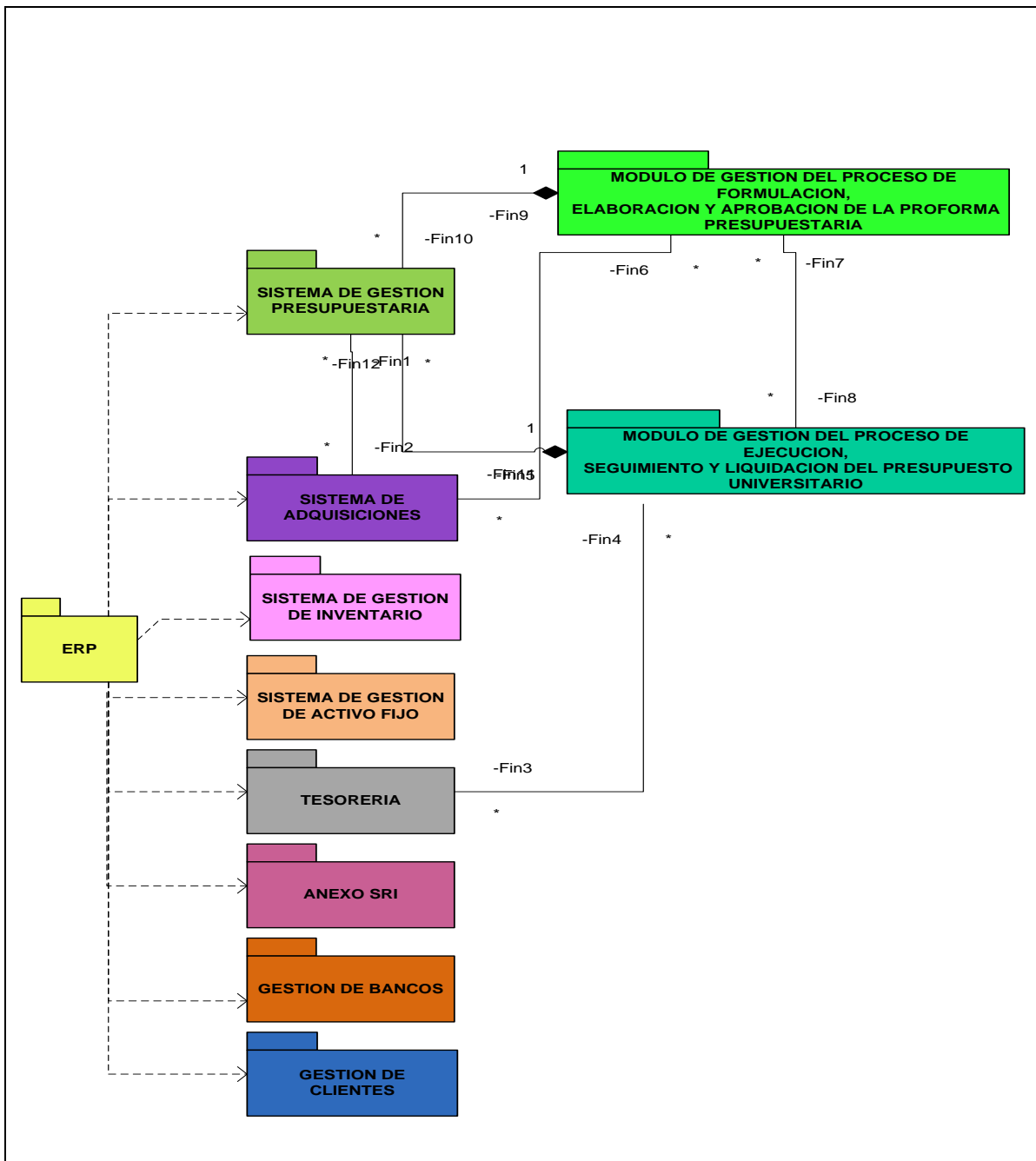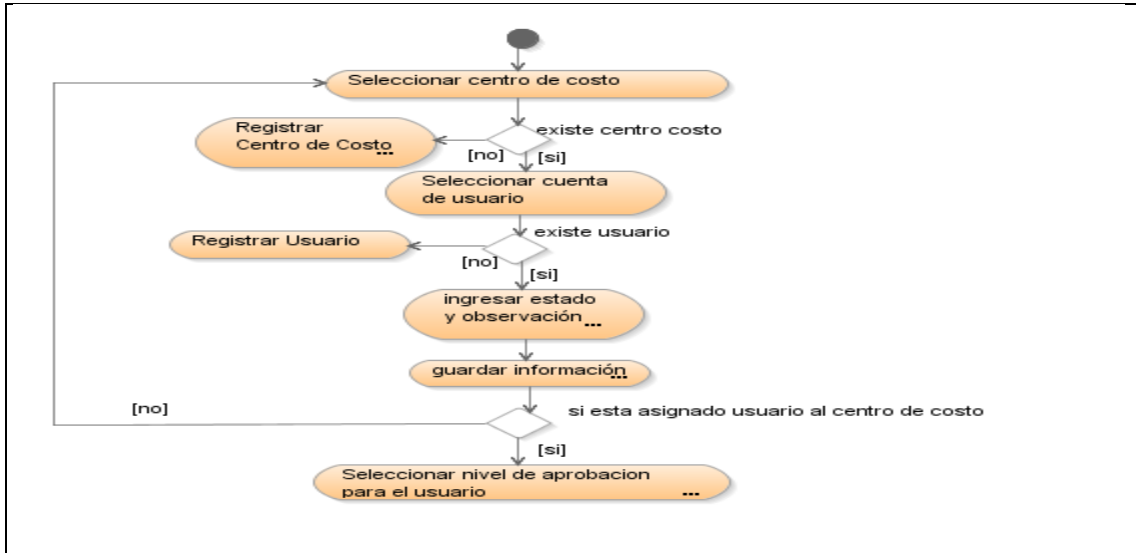

Source: Own

Figure 4.3. ERALL PACKAGE DIAGRAM

CHAPTER IV:

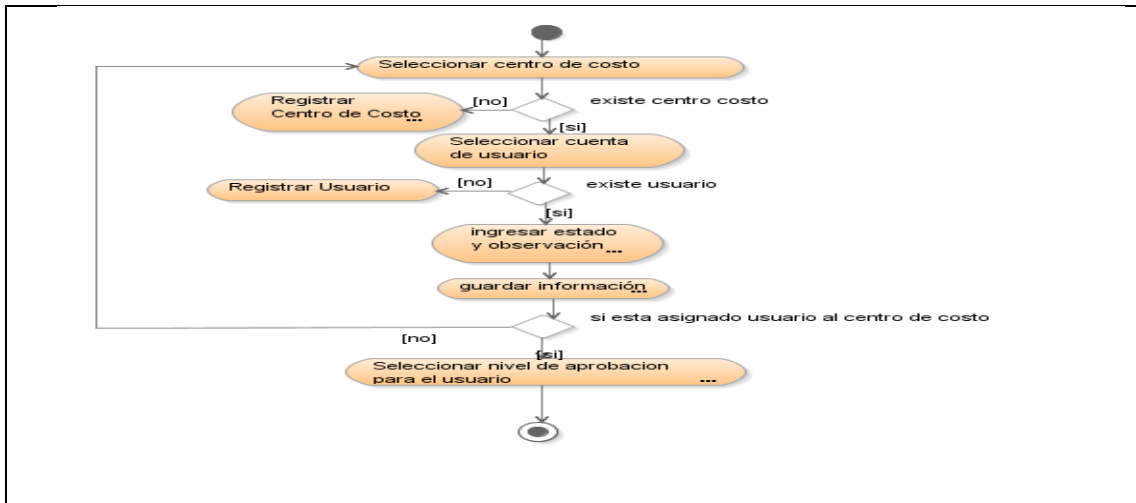## 4. IMPLEMENTATION VIEW

4.1. ACTIVITIES DIAGRAMS

4.1.1. Asiggn Users

Source: Own
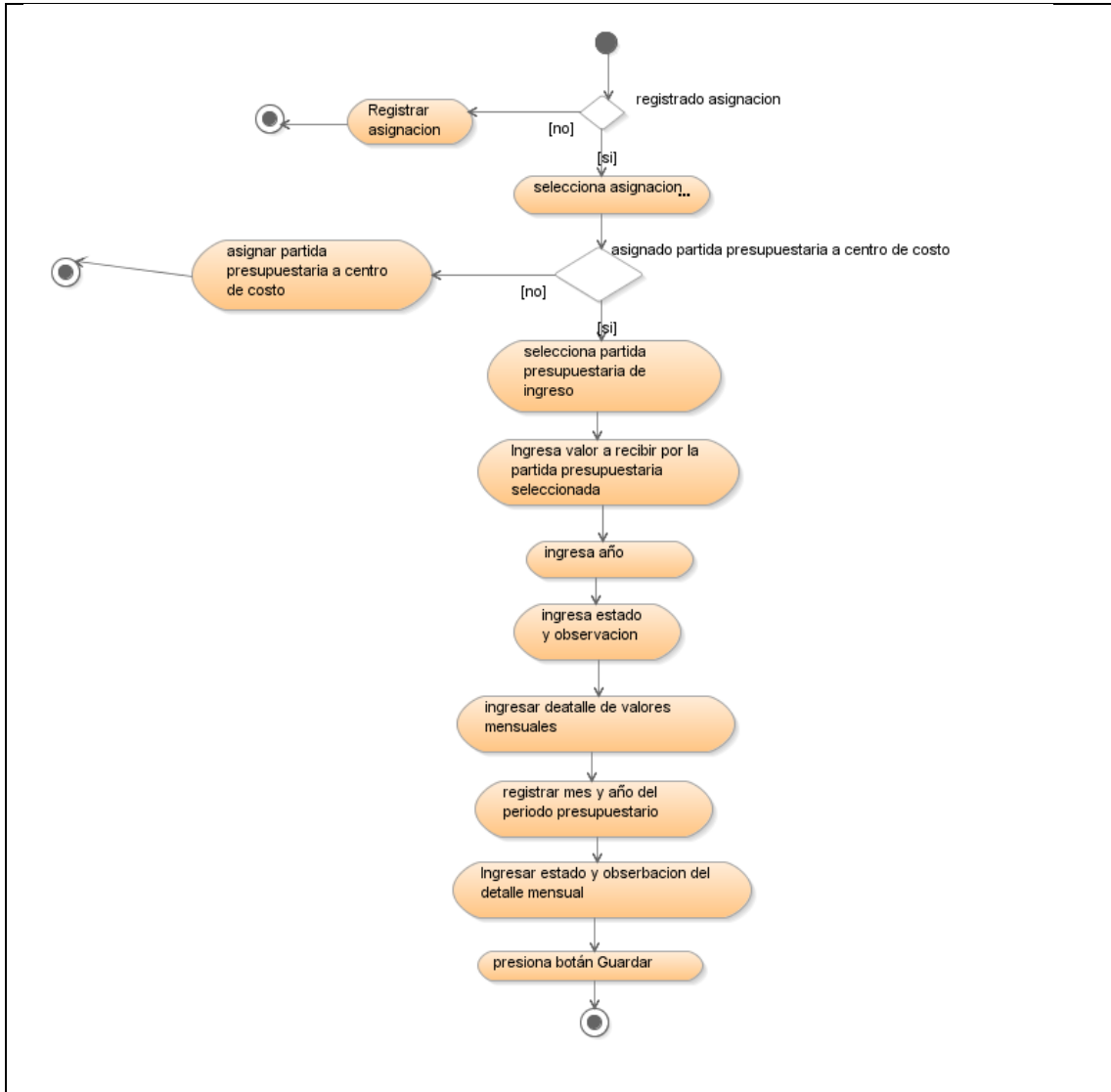
Figure 5.1. Asiggn users to cost center

4.1.2. Asigantion register

Source: Own

Figure 5.2. Asignation register

4.1.3. Revenue Budget Register

Source: Own

Figure 5.3. Revenue Budget Register

4.1.4. Link Item Item of CPC Budget (budget)
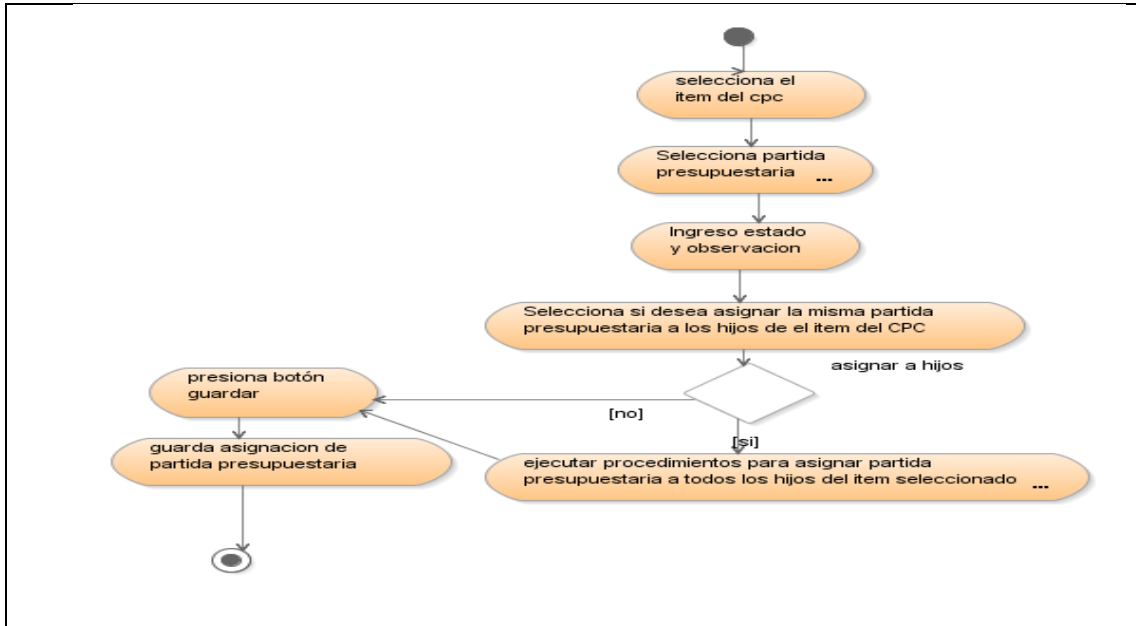
Figure 5.4. Link Item Item of CPC Budget (budget)

4.1.5. CPC Filter Items by Cost Center
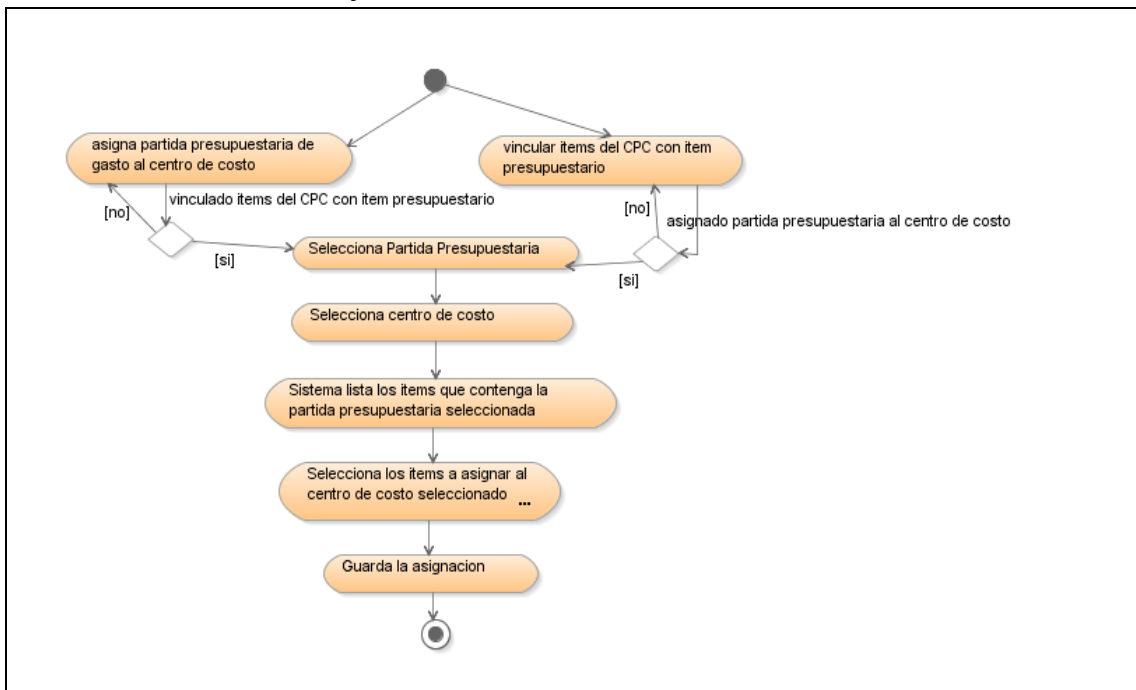
Figure 5.5. CPC Filter Items by Cost Center

4.1.6. Fiscal Budget Register
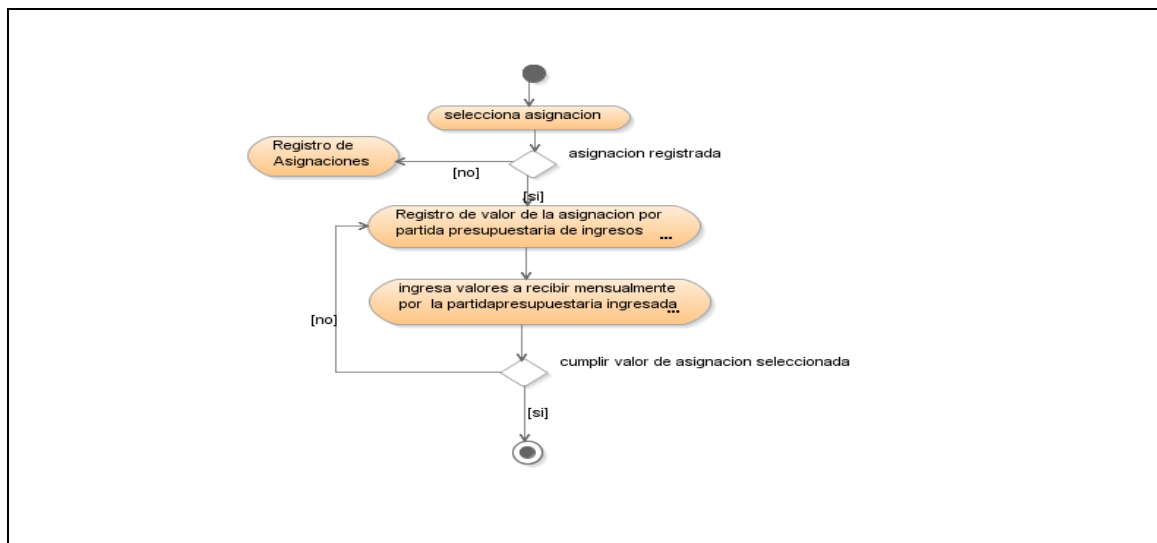
Figure 5.6. Fiscal Budget Register

4.1.7. Distribute Budget Ceilings
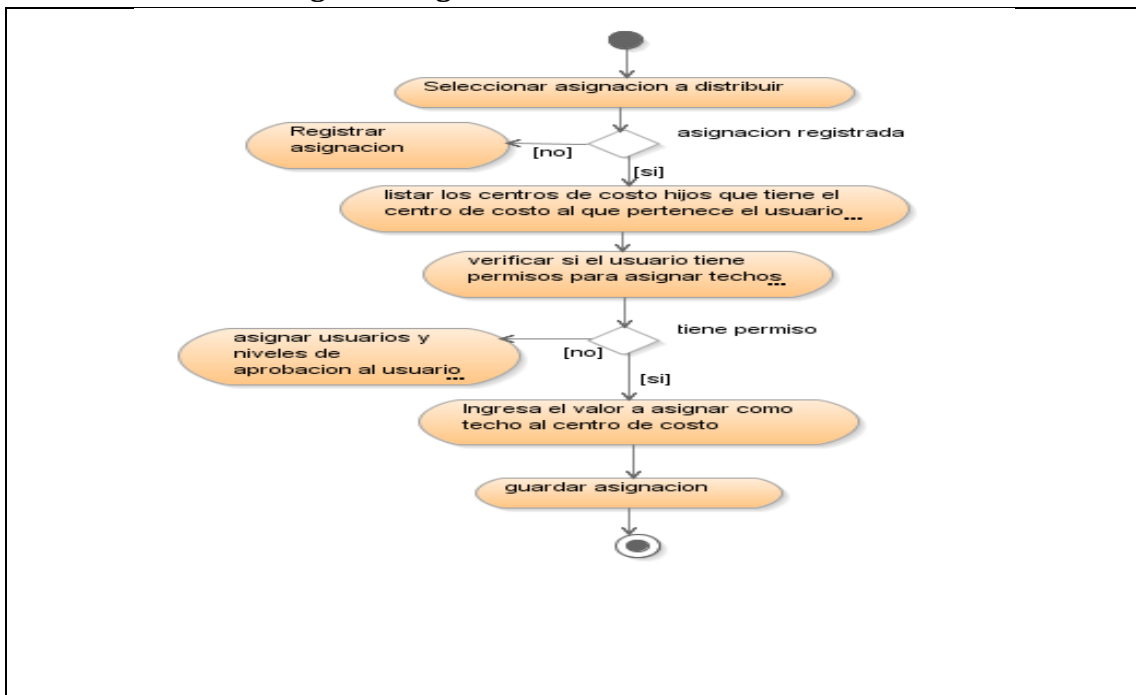
Figure 5.7. Distribute Budget Ceilings

4.1.8. Login Budgetary Requirements
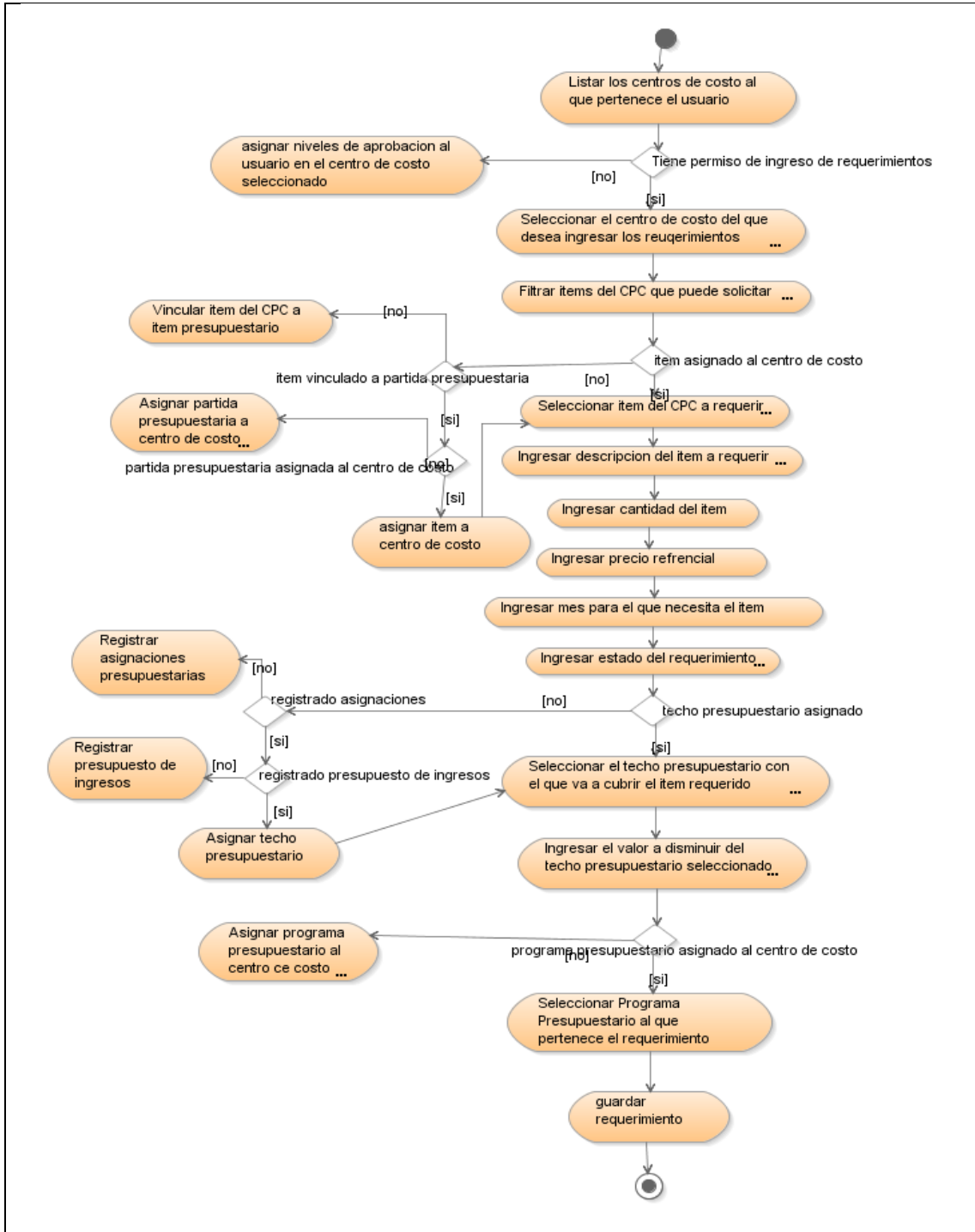
Figure 5.8. Login Budgetary Requirements

4.1.9. Registration Project Budget
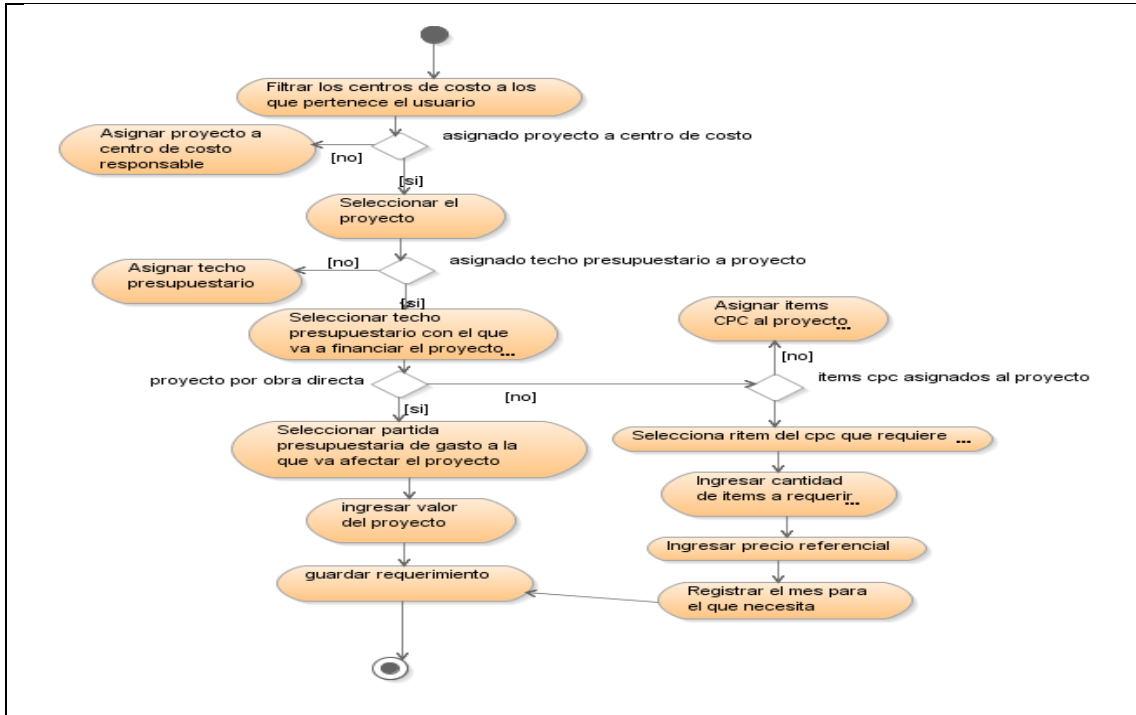
Source: Own

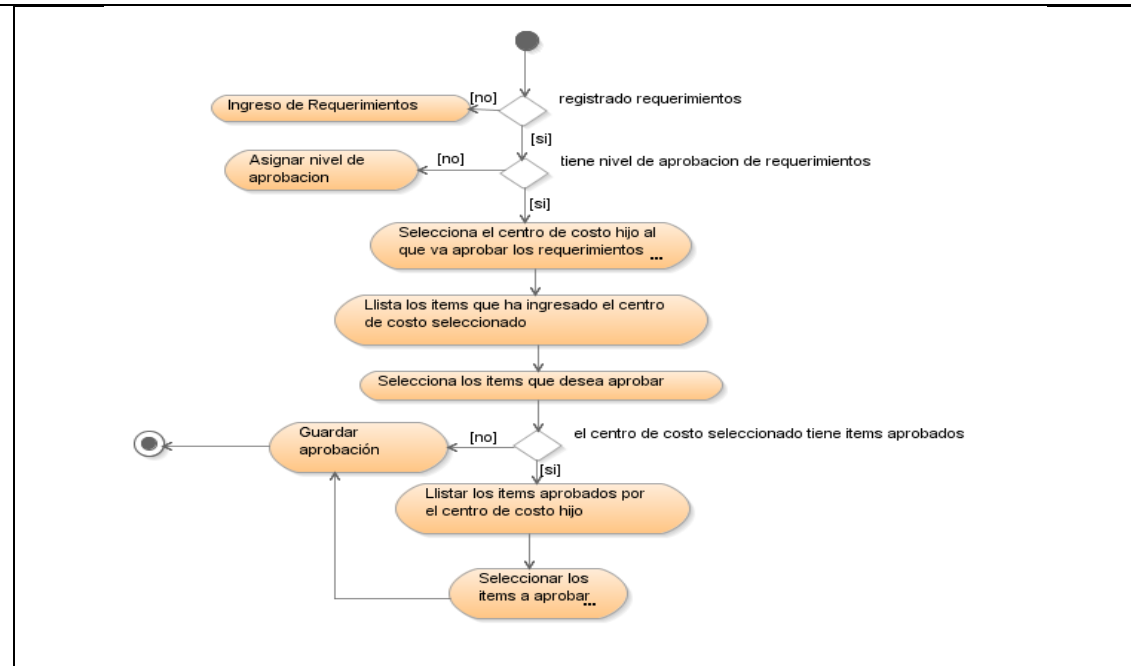**Figure 5.9.** Registration Project Budget

4.1.10. Personal Registration costs and basic living expenses
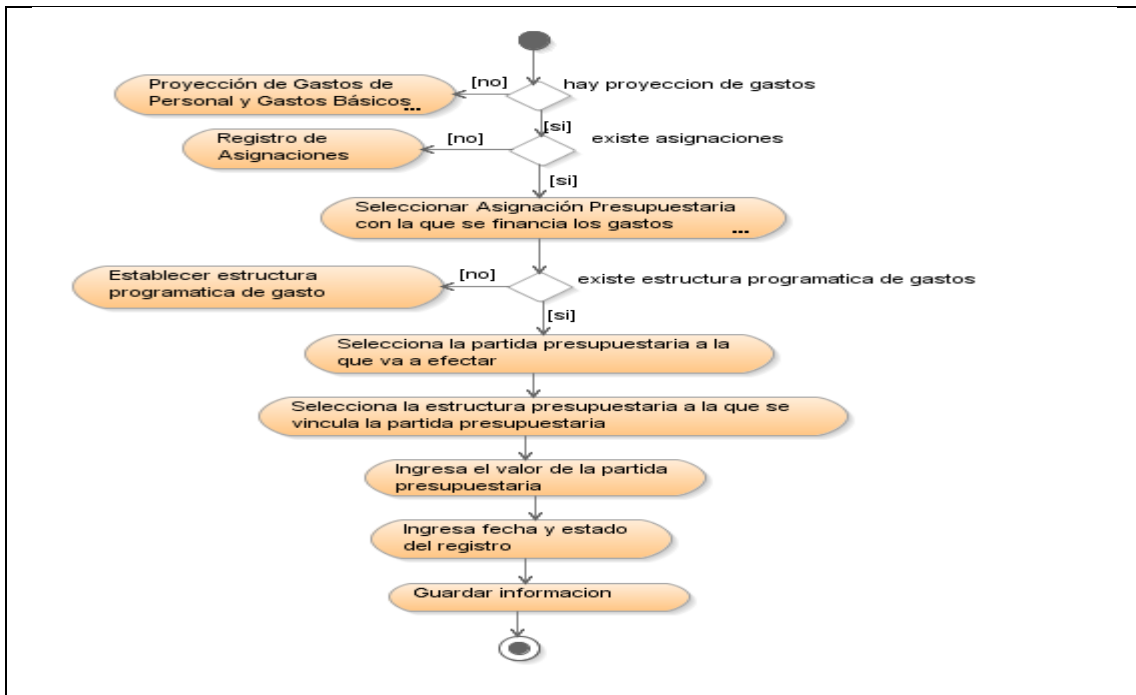
Source: Own

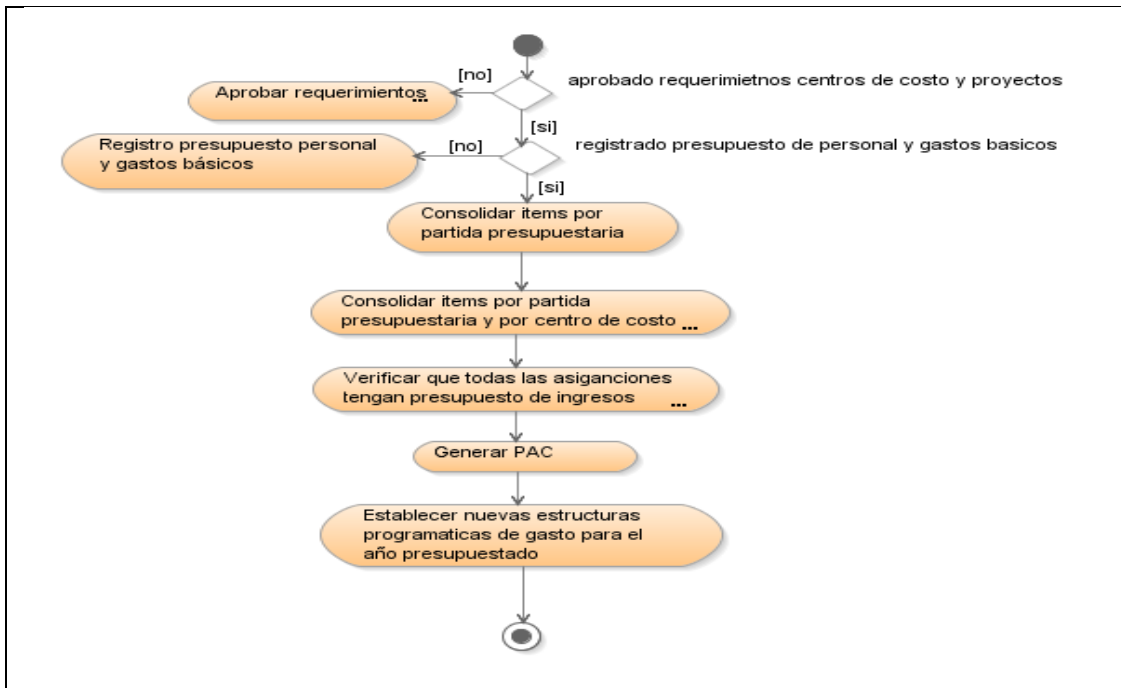**Figure 5.10.** Personal Registration costs and basic living expenses

4.1.11. Review and Approval of Budget Requirements

Source: Own

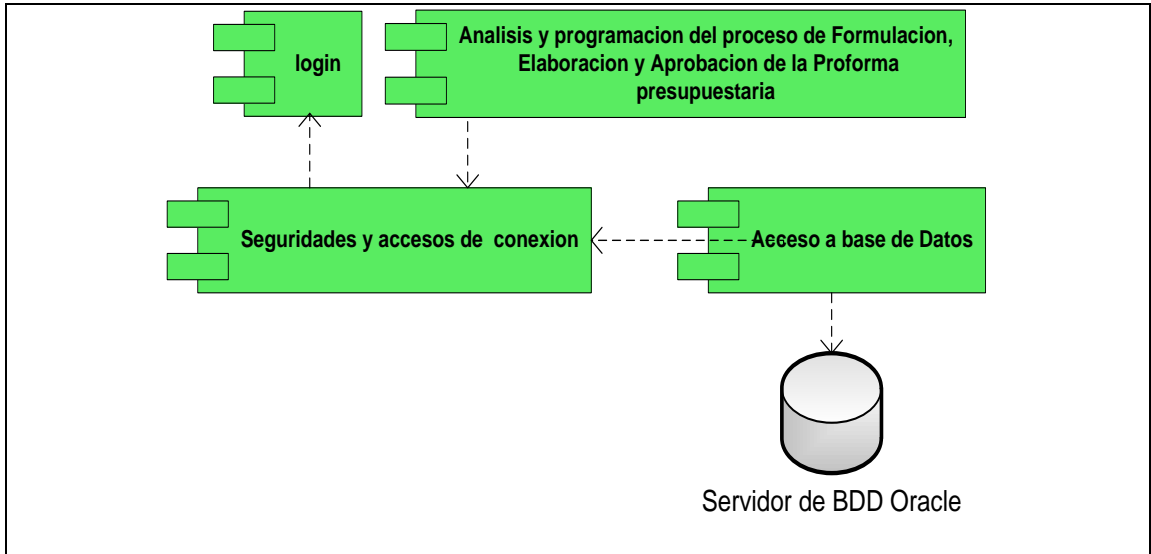**Figure 5.11.** Review and Approval of Budget Requirements

4.1.12. Generate Proforma Budget

Source: Own

Figure 5.12. Generate Proforma Budget

4.2.   COMPONENTS DIAGRAMS
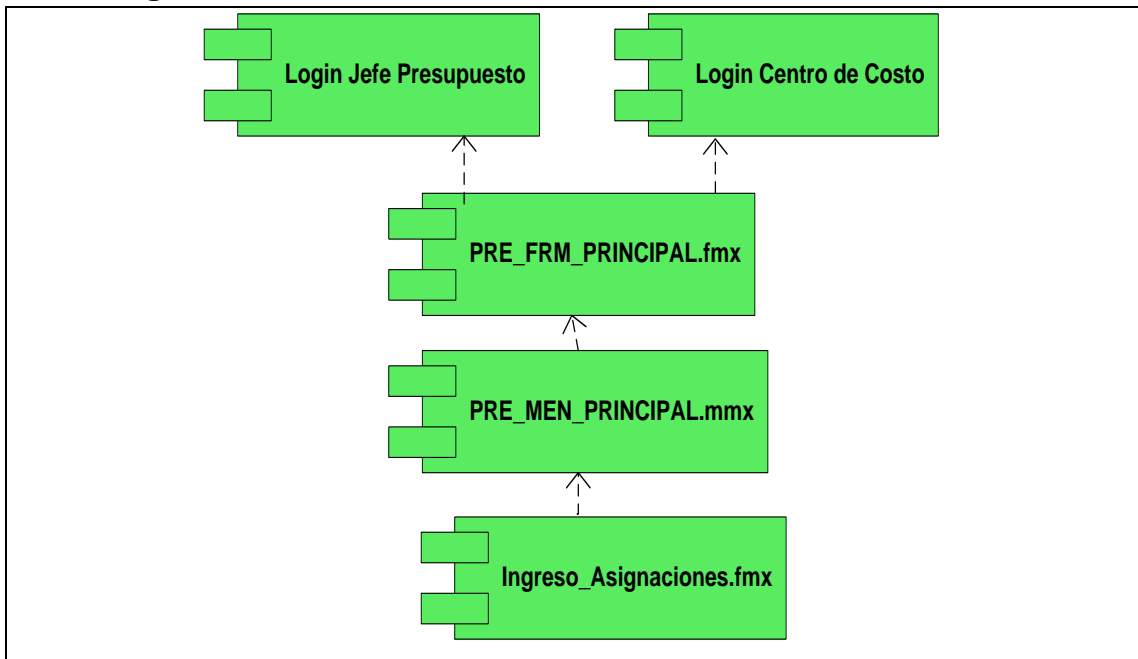

Source: Own

Figure 5.13. Components Diagram
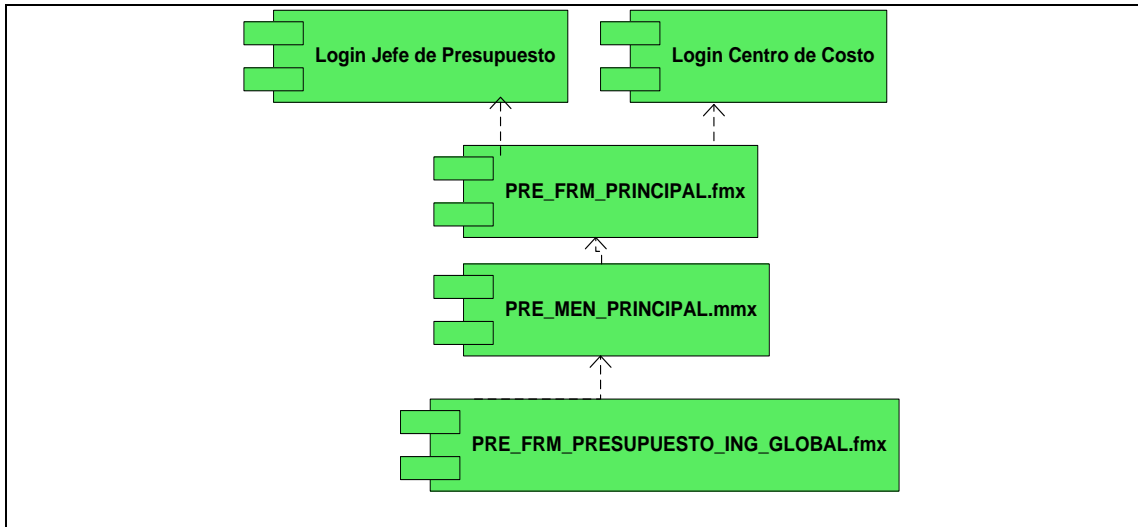
4.3.   COMMON PARTS DIAGRAMS

4.3.1. Register Allocatio

Source: Own
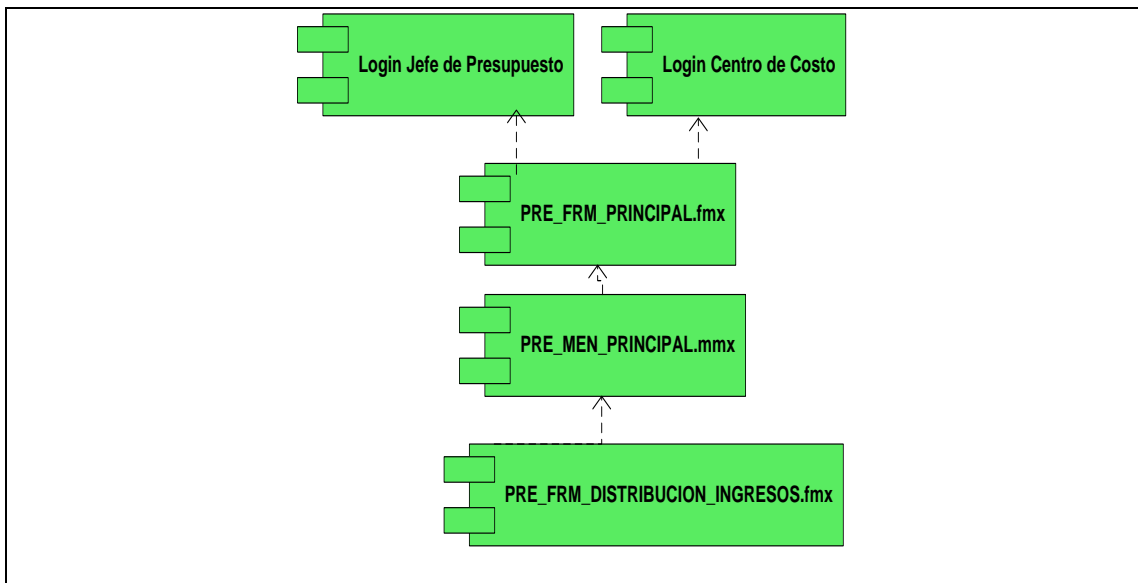
Figure 5.14. Common Components Diagram Assignment Record

4.3.2. Record Revenue Budget

Source: Own
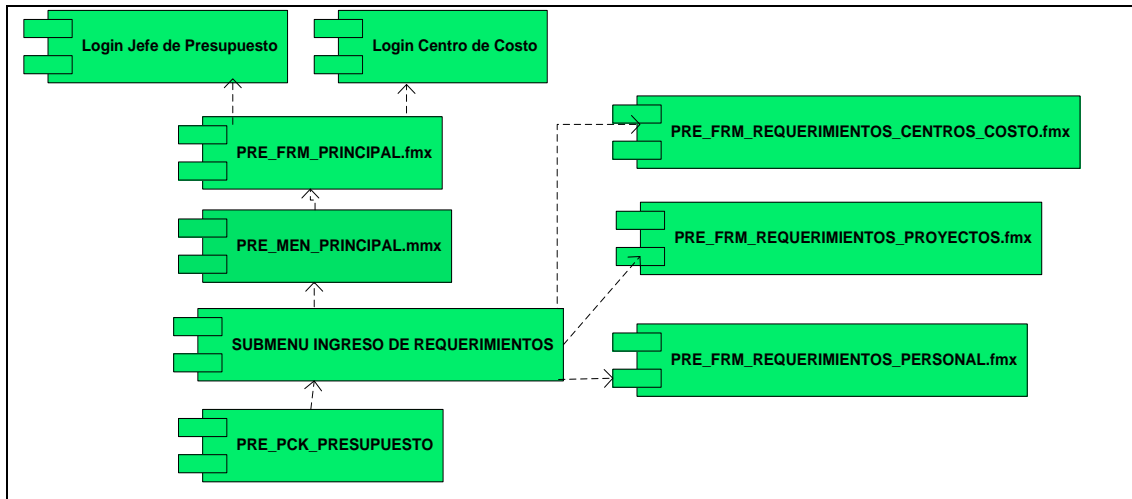
Figure 5.15.Common Components Diagram Assignment Record

4.3.3. Distribute Budget Ceilings

Source: Own

Figure 5.16. Common Components Diagram Income Contracts

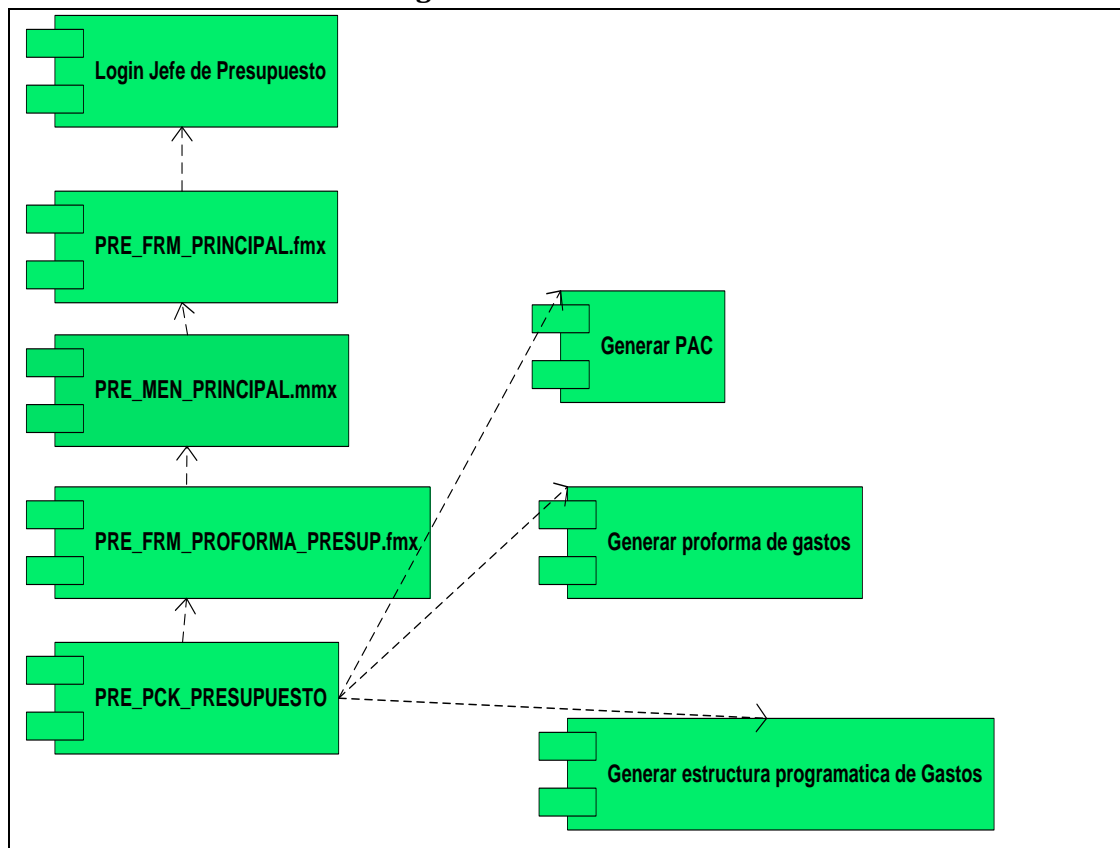### 4.3.4. Budgetary Entry Requirements

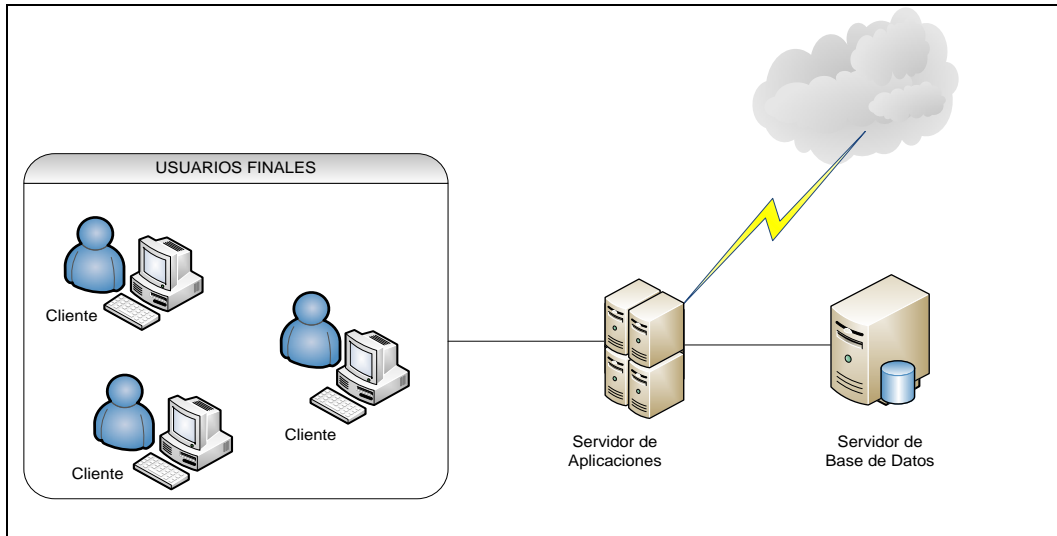**Figure 5.17. Common Components Diagram Budgetary Entry Requirements**

4.3.5. Generate Proforma Budget

Figure 5.13. Common Components Diagram Generate Proforma Budget

4.4.   ARCHITECTURE DIAGRAMS

Source: Own

Figure 5.17. Architecture Diagrams

CHAPTER VII:

5. RISK LIST

Nº	Risk description	Impact	% of Idea	Risk Mitigation Strategy
1	The users do not adapt quickly to the new budget process.	10	50%	Maintain a manual of procedures to be followed. Intensify training for all users, and socialize the new budget Process.
2	The time of communication with end users is too short when purchasing requirements and ask questions. Lack of participation of end users	9	40%	Schedule regular meetings with end users at a time which will not disrupt their daily activities. Motivate them system end-users aware that any contribution from them is important for the development of the project, with this we active user participation
3	Unrealistic expectations	8	35%	Suitably define the scope of the project. Properly planning development times. Do not create false expectations for the project developers, to avoid frustration in case of failure to achieve expected

				goals.
4	The release R1 SIGESPRE could not leave for the month in which you plan to deliver modules of the ERP.	7	30%	Increase effort.
5	A delay in one task causes cascading delays in dependent tasks	7	40%	Properly define the work plan so as to coordinate efforts to agree and comply poderlas
6	Inappropriate control deadlines for entry requirements for each cost center. There might be extra requirements on the system, such as opening manual updates or checks in the system.	5	30%	Determine if the system must provide flexibility in the budget timetable set
7	Modify the requirements put in place	6	20%	Perform meeting minutes so that the user double check your requirements and approve the minutes filed with signature
8	Integration with government systems, personnel who use it are not familiar soon.	5	10%	Understand the operation and how SIGESPRE are integrated with government systems ESIGEF.
9	The number of concurrent users exceeds certain functional limitations.	4	5%	Develop a test plan in the design phase, should determine this issue.
10	Cost Center People do not enter soon Budgetary Requirements	4	30%	Define requirements for entry times stops and sign commitment to cost centers
11	Incompatibility with Internet browsers and machine configurations are customers.	3	5%	Using a single platform all the clients of the institution

12	Development Team members leave the project. It involves time delays at different stages of implementation .	3	15%	Train new members before the outgoing members leave the project. Keep all documentation available for quick integration of new team members.

Source: Own

Tabla 7.1. Risk List

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. Conclusions

- The implementation of the budgetary management system module Process Management Design, Development and Approval of Budget Proforma to be included when the process to all entities within the institution, allowing to establish a budget based on actual needs to respond the objectives of the institution and the strategic plan.

- By implementing this module allowed us to have a quality system for budget management, and simplifies manual processes that were long and were not accurate, allowing control and access to information state budget for each entity.

- When you have registered a separate budget for each unit requesting, we can facilitate the calculation of unit costs requesting requesting that each unit can manage its budget revenue and strengthen the relationship between planned budget and in most cases islow or nonexistent.

- When using Oracle Database ® and was very helpful because it facilitates data security and access to them, while ensuring that the budget information UTN given is correct and requesting specific to each unit.

- Using Oracle ® Discovery will allow authorities to make better management of information and help in making decisions, because they can make their Owns consultations and statistics according to the needs of the moment and getting information online.

- The use of RUP methodology in the development of the project was helpful because it allows to obtain a clear idea from the start of project activities to meet the development to final product delivery, having a clear idea of the project develop is very helpful and are documented together with the development saves time and effort in developing.

6.2.   Recommendation

- The active participation of each of the users responsible for requesting units and their familiarity with the process established to arrive at a real annual budget and consistent.

- Establish rules of procedure for the timing of budget are fully implemented so that the processes do not lose their sequence and produce cascading delays in the activities of this module and related issues.

- It is recommended to socialize the budgeting process requesting all units, so they know what to do and how to make their budget requests to be included in the institutional budget, and that the information given is correct.

- For initial phase of drafting the budget proforma is necessary that the sheriff's budget is established and updated parameters and q filters necessary to ensure the entry of the information is correct.