"Implementation of a Web system of management of projects for the MIES INFA Imbabura"

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Summary. *The present project aims to make the web application with free software, to MIES INFA, the tools used are Apache web server, PHP as programming language and MySQL as database, this to be free software tools and also as one of the requirements of the institution sponsor, the system is oriented to manage the information on the projects that manages the MIES INFA the district of Ibarra by which the system account with the modules in the registration and monitoring of the projects in execution linked to the policies of the government by results.*

Key Words

Project, programming, software, policies, monitoring, implementation.

Abstract.

This project aims to make the web application free software, MIES INFA, the tools used are apache as web server, PHP programming language and MySQL as the database, this being free software tools and also as one the requirement of the sponsoring institution, the system is designed to manage project information that manages the MIES INFA district Ibarra os the system you have modules for registration and tracing of projects in execution linked to political government by results.

Keywords

Project, Programming, Software, Policy, Monitoring, Enforcement.

1. Introduction

The Ministry of Economic and Social Inclusion (MIES) is an entity with the public policy of child development that determines the compliance of a technical standard, articulated in a series of protocols and tools that allow for the deployment and operation of quality services for children under the age of three years.

The requirements of the new information age oblige the institution to become more efficient and effective in all its processes. The Income, monitoring and control of the projects and programs undertaken by the institution is done manually, which demand a great deal of time and resources; adequate automation of these processes of monitoring and control, will enable us to optimize time and results.

Problem.

The MIES INFA does not count with an adequate tool to carry out the income, monitoring and control of automated way to identify deviations in the planned; redesign the same and to thus be able to make decisions in an appropriate manner and tuna.

Justification.

In the planning department of the INFA is indispensable for the development of a software tool (web application) that allows, create monitor and evaluate a plan submitted by the public servers, this institute.

The system will enhance the management of the activities of the operational plan of the Institute for Children and the Family INFA of Imbabura, which are formed in districts, Ibarra, Cotacachi and Otavalo.

To track the operational plans is necessary:

- Access to reliable information, precise and opportune.
- The possibility of sharing information among all the components of the Organization.
- Enables the organization through policies, objectives, standards, methodology, allocation of tasks, the proper administration of the Human Resource.
- Integrate the financial information ESIGEF and human resources which are currently in different systems.
- The information in the operating plan POA should be supplied directly by users, the proposed system.
- That the operational plans are related to the Institutional Development Plan and the National Plan of good living.
- Daily monitoring of activities, generating report to evaluate the production of the employee.
- Reduction of time and costs of the processes.

General Objective

Deploy the Web system of planning, programming, budgeting and monitoring of MIES INFA in the province of Imbabura, applying the tools of free development.

Scope.

The system of PPPSMI (Planning Programming Budget and Monitoring the MIES INFA), will be based on the National Plan of good living, as a contribution of information to the national system of the GPR (Government by results), which will allow the decision-making according to the objectives and thus control the state budget that this designated for the public institution MIES INFA in the province of Imbabura.

The present work of implementation it is proposed to automate the processes relating to income, planning, programming of activities, Budget and Monitoring of MIES INFA, through the following modules:

• Planning Module, programming and budget
• Monitoring and Validation of the module.
• Reprogramming module.
• Results module management indicators.

Limitations.

The present work focuses on the design and development of an information system that improves the income, planning, programming of activities, Budget and Monitoring of MIES INFA, the same that has the following limitations:

•The system does not manage budgets.

•Through the system is only records basic information of projects and programs, as well as its activities and associated resources.

2. Methodology of development.

A software development methodology refers to the environment that is used to structure, plan and monitor the process of development of an information system.

A variety of methodologies have been developed over the years, each of them with their strengths and weaknesses. A particular methodology is not necessarily applicable to all types of projects, rather each type of project has a methodology that fits best.

2.1 Outermost regions.

It is a methodology whose purpose is to deliver a software product. It structure all the processes and measures the efficiency of the Organization. "It is a software development process which uses the Unified Modeling Language UML, is the most widely used standard methodology for the analysis, implementation and documentation of object oriented systems." (Rigoberto, 2012)
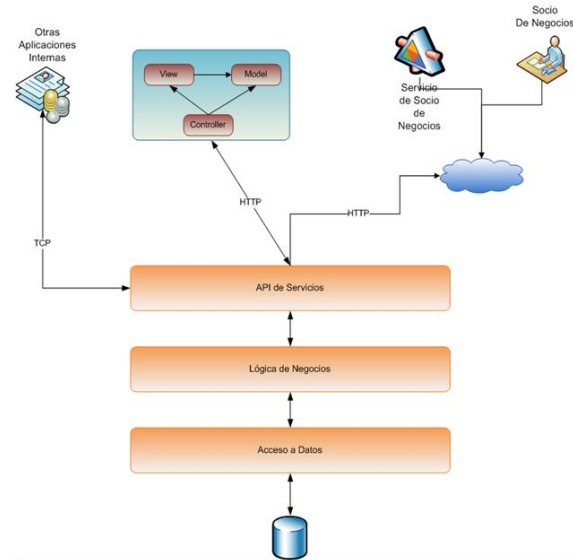
2.2 MVC architecture.

Figure 1: MVC architecture

Source: (icomparable, 2010)

The MVC architecture is based on the separation of the data and the application model, the user interface (commonly a browser that receives HTML code) and the interaction between both, the controller.

In an MVC Application, the administration of the State, the validation and the workflow are fundamental issues and the main focus of attention. Due to the nature of the HTTP protocol status are not available, which makes the task difficult.

Model View Controller (MVC) is a style of software architecture that separates data from an application, the user interface and the control logic in three distinct components. This is a model very ripe and that has proven its worth over the years in all kinds of applications, and on a multitude of languages and development platforms. (LOJAN, 2015, p. 40)

2.3 Tools

The tools employed as a requirement of the sponsoring company are the following:

2.3.1 XAMPP.

XAMPP is the most popular environment of development with PHP. XAMPP is a server platform independent, free software, which consists mainly in the

system of management of MySQL databases, the Apache web server and the interpreters for script languages: PHP and Perl.

2.3.2 Apache Web Server Tomcam.

The web server is as Granados Peace, (2014): "As mentioned, the network infrastructure covers the hardware part. The web server is the software component that must be installed and configured for the server to be operational." (p. 228)

It is multiplatform, free and open source. Tomcat is a web container with support of servlets and JSPs. Tomcat is not an application server, such as JBoss or JOnAS. Includes the compiler Jasper, which compiles JSPs converting them into Servlets. The Tomcat servlet engine often occurs in combination with the Apache web server.

2.3.3 CodeIgniter - MVC Framework.

CodeIgniter is a php framework for the development of web applications with the pattern of Model View Controller architecture, i.e. that all user requests to be transferred to a class driver, this in turn obtains the information from our models and passes it to their respective view (codeigniter, 2016).

2.3.4 MySQL

MySQL is a relational database management system, multithreading and multiuser with more than six million installations MySQL since January 2008 a subsidiary of Sun Microsystems and this in turn of Oracle Corporation since April 2009 develops MySQL as free software in a dual licensing scheme.

On the one hand it offers under the GNU GPL for any use compatible with this license, but for those companies who want to incorporate it into products privative must buy the company a specific license that allows them to this use. It is developed for the most part in ANSI C.

2.3.5 NetBeans.

NetBeans is a modular environment for the development of computer applications, written in the Java programming language. (Gomez, 2012, p. 3). The NetBeans IDE is an integrated development environment (IDE), modular standard base (normalized), written in the Java programming language. The NetBeans project consists in an open-source IDE and an application platform, which can be used as a support structure assembly (framework) to build any type of application.

3. System Analysis and Design

The description of the processes carried out by the MIES INFA in the District Address, for the monitoring and implementation of projects of the POA, allows us to identify the actors involved, the flow of activities and the use cases that define the scope of the system and its environment.

The orientation of proposed development constitutes a RUP process configuration according to the characteristics of the project, selecting the roles of the participants, the activities to be carried out and the artifacts (deliverables) that will be generated. This document is at the same time one of the artifacts of outermost regions.

3.1 Process Flow

The analysis and design of processes has clear and concise information on the functional relationships of the same, that reduce the complexity of the overall process, which carries out the SPPPSMI.

3.2 Identification of actors

The correct identification of the parties involved, as well as the activities and functions that meet in each one of the processes, ensures the success of the project. The actors involved in the system and the functions are described the approach of development of software. Users of the system of planning and monitoring budgetary programming MIES INFA are:

- The Director/to district produces the plans, programs and projects for the management of the plans to perform follow-up on the programs submitted by the units in charge of the district level.
- The members of the internal management of the District Address, use it to comply with the management indicators and results.

3.3 Analysis of requirements.

The District Address Ibarra MIES INFA is an entity of public nature and has as appointment (Bermeo, 2015) the mission: "plan, coordinate, manage and control plans, programs and projects at the district level, within the scope of its jurisdiction, according to the objectives, strategies, policies, regulations and procedures defined at the central level and zonal levels to implement and provide to the citizenship quality services, efficient and effective in the framework of the powers and institutional mission." (p. 145). Therefore, the Mies INFA considers it necessary to the development of a system of Planning, Programming, Budget and Monitoring MIES INFA (SPPPSMI) as part of the automation process of all its institutional areas.

3.4 Use Case diagrams of the system.

The Use Cases (Houses Rome, 2016, p. 48) described, in the form of actions and reactions, the behavior of a system from the point of view of the user. Allow you to define the limits of the system and the relationships between the system and the environment. Use cases are narrative descriptions of the business functionality/system independent of the deployment. (MIES, 2014).
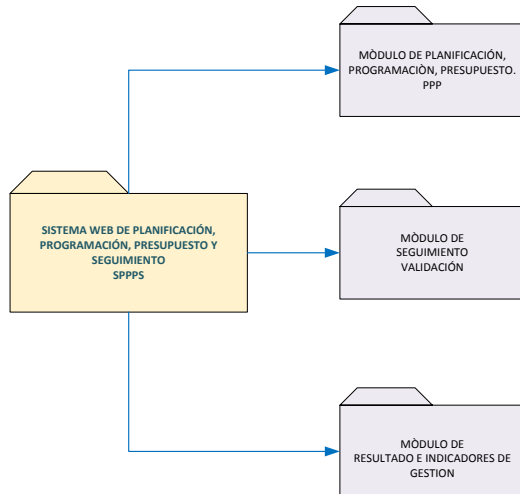
4.   Operation of the system.

Figure 2: Global diagram of the package of SPPPS.

Source: Own.

The modules that the system is formed SPPPS MIES INFA

4.1 Planning Module, programming and budget.

In this module the end user can update the main information of the project and the results are both qualitative and quantitative (logical framework - indicators - programmatic performance, budgetary execution among others).

At the same time one of the major improvements of this module is the ability to manage projects and sub-projects considering phases of operation for each one of them.

*   SUB MODULE OF BASIC INFORMATION OF THE PROJECT - This module records the Institutional Operating plan projects and the National Plan of good living.

Project Management administrator.

 Contains the options of vision, policies, strategic objectives, indicators of quality, projects and activity.

Figure 3: Project Management Administrator

Source: Own.

4.2 Monitoring and Validation of the module.

This module manages the following functionality and information:

Monitoring and Evaluation Indicators

*   Allows you to record the planning of programmatic goals according to the definition of the different categories of the array of monitoring (Logical Framework). According to the places of intervention and the selected period.
*   Allows you to record the program forward according to the definition of the different categories of the array of monitoring. According to the places of intervention and the established period. The record of this information is given to the minimum level of period and minimum level of intervention site.
*   Allows you to record the budget planning according to the definition of the different categories of the array of monitoring. According to the places of intervention and the established period.
*   Allows you to record the implementation of expenditure for activities according to the array of monitoring. According to the places of intervention and the established period. The record of this information is given to the minimum level of period and minimum level of intervention site.
*   Allows you to record comments at the level of the programmatic advances by indicator.
*   Allows you to record comments at the level of the implementation of expenditure by activity involved.
*   Displays reports according to the percentage of progress of the indicator.

Follow-up to monitor my projects.

This form allows you to track, deploying the guidelines to which is linked to the project.
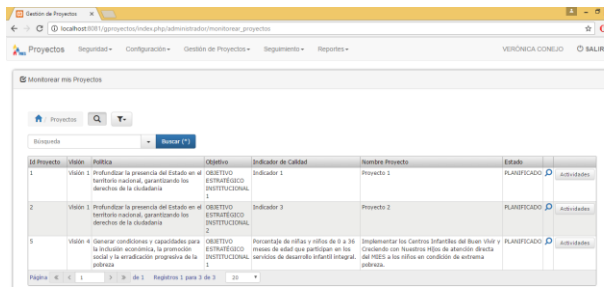
Figure 4: Follow-up to monitor my projects.

Source: Own.

Allows you to monitor the activities of the selected project, with the vision, political, strategic objectives and indicators relevant quality.

4.3 Results module management indicators.

This module allows the make reports of progress in pdf, final report of the processes of activities of the various projects of the schedules.

• User Report
• Report of operational objectives by department.
• Report of compliance with objectives and daily activities.
• Report of qualitative indicators of projects under the Plan institution and National Plan of good living.

Reports Administrator.

Allows to obtain reports of report in pdf. According to the list of projects, progress by activity, progress by project, compliance by indicators, compliance by strategic objectives and compliance by policy.

Figure 5: Administrator reports.

Source: Own.

4.4 Results

After having made the development of the application to adapt to the needs of the MIES INFA of the information existing in the projects.

There are several benefits that could be obtained with the implementation of this application:

Table1: Benefits.

Impacts	Benefits
Technological Advice	Centralized information.
Social	Improving the attention to users.
Institutional	Controls and manages the information appropriately.

Source: Own.

5. Conclusions

When deploying the Web system of Budget Planning Programming of Activities and follow-up, it is necessary to emphasize the following conclusions:

• The analysis of development tools in free software, allows us to have a global vision of the scope that you can have a software product. The selection of the tool in the Integrated Development Environment (IDE), I present risks to the project in terms of its limitations for the generation of graphics components.
• The system developed is just a tool that supports the monitoring and control of budget, programming project activities of the District Address Ibarra MIES INFA. But by its modular design and MVC architecture, is flexible in terms of scalability and growth.
• The planning and budgetary process are a fundamental part in the follow-up to the projects in execution, and clearly defines what you are going to perform, you can optimize the resources for the benefit of the society in such a way that the institutional budget of the District Address Ibarra MIES INFA will be much better spent.
• The use of the methodology RUP in the development of the project allowed me to have a general idea of the project to develop, in addition allows me to go to document the entire process from its beginning until its final stage, so that generates the detailed logging.

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Rabbit Autor-Myriam MUENALA, I was born a 07 October 1983 in the canton Otavalo, in the community of Cotama, Imbabura province. My primary instruction the perform in school Gonzalo Rubio Orbe of the canton Otavalo, province Imbabura, at the end I joined the I.T.S. Republic of Ecuador at the same canton where I obtained the degree of Bachelor in Computer Science. Finally I joined the race in Computer Systems Engineering from the Technical University of the North to obtain the title of Engineer in Computer Systems.